

***Ianiropsis* (Isopoda, Asellota, Ianiridae) from Korea,
with Description of a New Species**

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한국산 수염갯가좁속 등각류(물좁아목, 바다좁과)의 기재 및 1신종

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적 요

1979년부터 1990년까지 우리나라 연안과 도서지방의 11개 지역에서 채집된 수염갯가좁속 등각류를 조사한 결과 1신종을 포함한 6종이 한국 미기록종으로 동정되었다: *Ianiropsis derjugini* Gurjanova, *I. setifera* Gurjanova, *I. epilittoralis* Menzies, *I. tridens* Menzies, *I. serricaudis* Gurjanova and *I. koreaensis* n. sp.

이들 한국산 6종에 대하여 기재하고 검색표를 제시한다.

Key words: *Ianiropsis*, Asellota, Isopoda, taxonomy, Korea.

INTRODUCTION

The suborder Asellota is a group of small isopod crustaceans which live in the various habitats from freshwater, subterranean waters, tidal pools, littoral zones to the abyssal bottom. This suborder contains probably 2,000 species in about 120 genera and 31 families (Schultz, 1982).

In Korea, Matsumoto (1967) described *Asellus hilgendorfii* Bovalius and three new species and subspecies of *Makinia*, *M. troglodytes*, *M. coreana* and *M. japonica dilata*, from subterranean waters. Subsequently Kwon (1988) reported *A. hilgendorfii* from freshwater. But none of the marine asellotes have been known

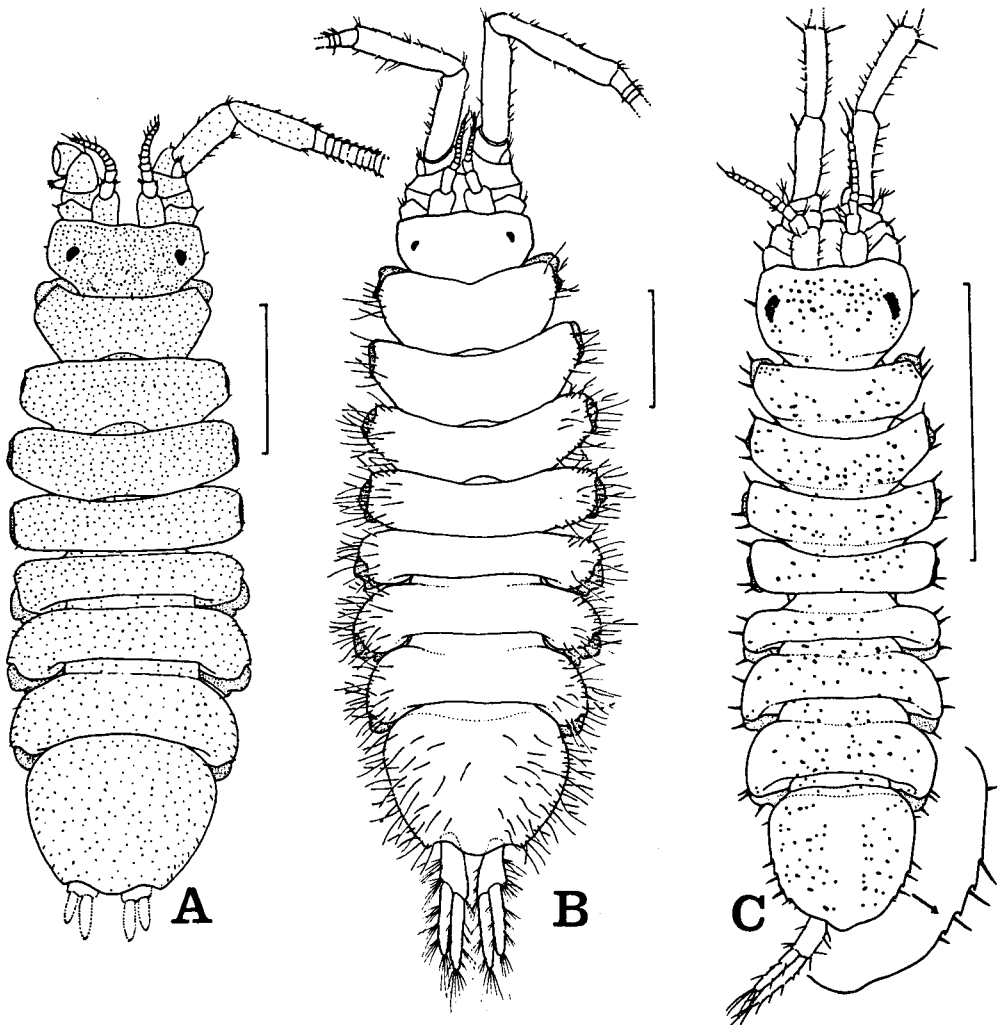


Fig. 1. A, *Ianiropsis derjugini* Gurjanova (male); B, *I. setifera* Gurjanova (male); C, *I. epilittoralis* Menzies (male).

Scale bars = 1.0mm.

from the Korean fauna.

The species of the *Ianiropsis* occur commonly among rocks, sponges and algae in the intertidal zones, but are unusually found in the depth of 40-60m (Menzies, 1952; Kussakin, 1974; Sivertsen and Holthuis, 1979).

Collections were made from 11 localities of Korean coasts by the junior author in 1979-1987, and by the senior author in July, 1990. Six species including one new species were identified. This is the first record of the marine asellotes from Korea. The specimens are deposited in the Department of Biology, Inje University.

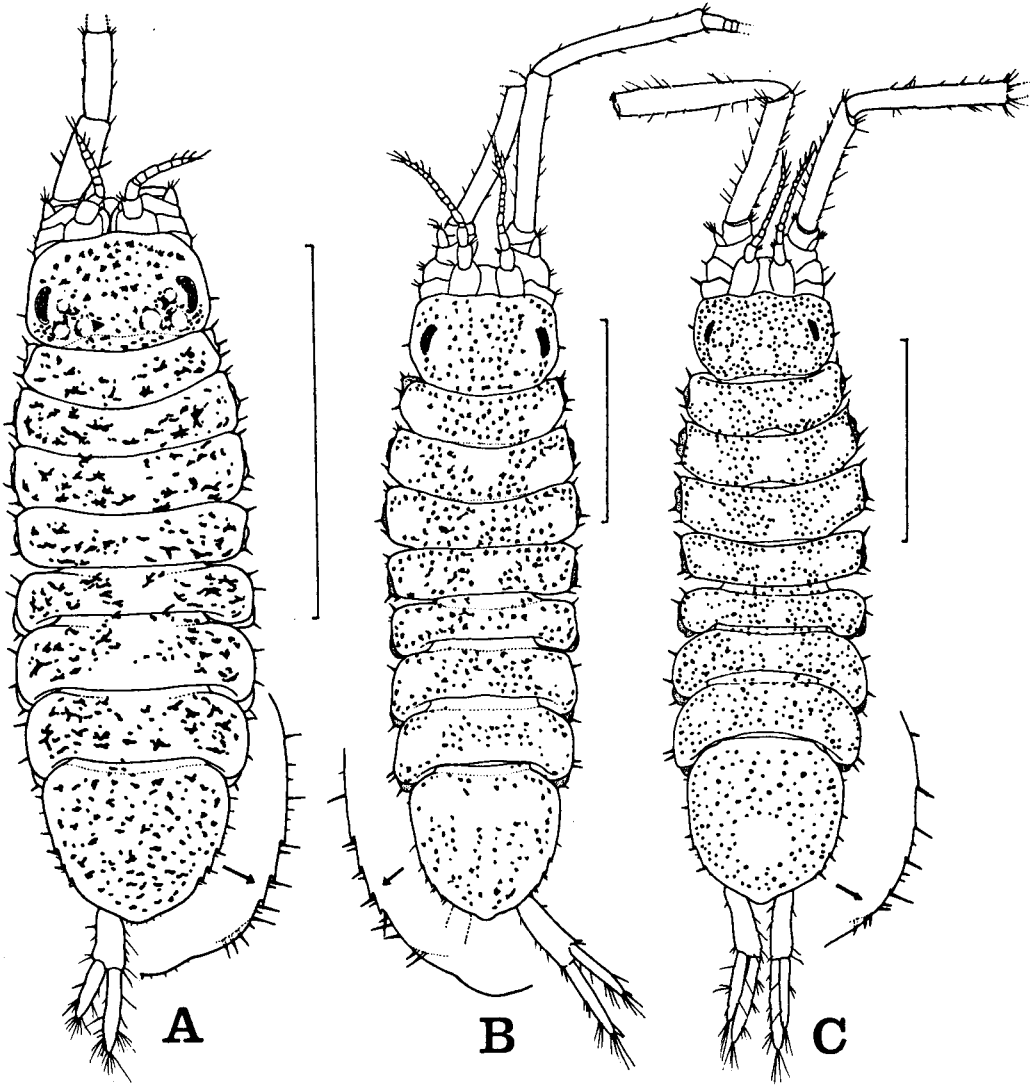


Fig. 2. A, *Ianiropsis tridens* Menzies (male); B, *I. serricaudis* Gurjanova (male); C, *I. koreaensis* n. sp. (holotype male). Scale bars = 1.0mm.

SYSTEMATIC ACCOUNT AND DESCRIPTIONS

Suborder Asellota Latreille, 1806 물좀 아목(개칭)
 Family Ianiridae G.O. Sars, 1897 바다좀 과(신칭)
 Genus *Ianiropsis* G.O. Sars, 1897 수염갯가좀 속(신칭)

Diagnosis: Cephalon, pereon and pleon lacking projecting lappets. Cephalon lacking long rostrum. Coxal plates visible in dorsal view on pereonites 2-7. Pleon with two somites. Uropods biramous. Antenna 2 with distinct scale. Maxillipedal palp with first 3 articles about as wide as endite. Dactylus of pereopod 1 biungulate.

Those of pereopods 2-7 inclusively triungulate. Propodus of pereopod 1 without serrations on infero-proximal margin. Male pleopod 1 expanded laterally at apex, pleopod 2 concealing pleopod 3 in ventral view, exopods of pleopod 3 narrower than endopods (after Menzies, 1962).

Remarks: *Ianiridae* (type genus, *Ianira* Leach, 1813) and *Ianiropsis* (type species, *I. breviremis* G. O. Sars, 1897) were established by G. O. Sars (1897, pp. 98-99, 102-103). Subsequently, describing two new species, Richardson (1904) gave them the generic name *Janiropsis*, not *Ianiropsis*. The erroneous spelling of *Janiropsis* was pointed out by Menzies (1952) who nevertheless used the familial name as *Janiridae* in that and the subsequent publications. Up to now, the *Janiridae* has been used by most authors. In this paper, the present authors retain the generic and familial names, *Ianiropsis* and *Ianiridae*, presented in the original publication of G. O. Sars (1897).

1. *Ianiropsis derjugini* Gurjanova, 1933 굵은수염갯가좀 (신칭) (Figs. 1A, 3)

Ianiropsis derjugini Gurjanova, 1933 (pp. 82-83, figs. 5-6); 1950 (p. 282).

Ianiropsis kincaidi derjugini: Menzies, 1952 (pp. 139-141, figs. 56-59).

Ianiropsis derjugini: Kussakin, 1962 (p. 46, fig. 23); 1974 (p. 260, fig. 24).

Material examined: 1 ♀, 2 ♂♂, Ayajin, May 15, 1981, (D.H. Kwon); 2 ♂♂, Jun. 2, 1981, Ayajin, (D.H. Kwon); 1 ♀, Hyöpjae, Cheju I., Apr. 13, 1987, (D.H. Kwon).

Description: Male- body length up to 4.8mm, width up to 1.7mm.

Color yellow with numerous dark brown chromatophores. Body about 2.8 times as long as wide. Frontal margin of cephalon with an inconspicuous rostrum. Eyes small. Lateral borders of pleotelson smooth, without serrations and setae; posterolateral angles acute and projecting; posterior margin with a pair of distinct concavities. Uropods not exceeding half length of pleotelson.

Tip of antenna 1 approaching to half of peduncular segment 5 of antenna 2. Antenna 2 much shorter than body length; each of peduncular segments 5 and 6 about half length of cephalon width. Maxilla 1 with 4 pectinate and a small simple setae on endopod, 13 apical denticulate and a subapical serrate setae on exopod. Maxilla 2 with 4 apical setae on each lobe of exopod. Maxilliped with 2 coupling hooks; palp 5-segmented, segment 4 as long as segment 2 and twice as long as segment 5. Pereopod 1 with 5 spines on inferior margin of carpus, a spine on inferior distal angle of propodus. Pereopod 7 with 2 and 6 spines on inferior margins of carpus and propodus, respectively. Pleopod 1 of male with lateral apex entire, ending in round lobe.

Remarks: Menzies (1952) assigned the specimens from the northern California to *Ianiropsis derjugini* Gurjanova, 1933 and considered it as a subspecies of *I. kincaidi* Richardson, based on the similarity of the male pleopod 1. There are, however, many significant differences in the other features between the two Menzies's subspecies as follows: *derjugini* has much shorter and thicker peduncles of the antennae 1 and 2, compared to those of *kincaidi*; the pleotelson of *derjugini* is not serrated along lateral margins and has two distinct concavities on the posterior margin, while that of *kincaidi* is slightly serrated laterally and never shows such distinct concavities; the shapes of female opercula are very different between the two. Therefore, we are agree with Kussakin (1962) who retained the specific status of *I. derjugini*.

This species is very similar to *I. setifera* in both having the relatively short peduncles of antennae 1 and 2, the pleotelson with two concavities on posterior margin, and the similar shapes of cephalon and pereon, except for dense marginal setae of *I. setifera*.

Distribution: Korea (Korea Strait, East Sea), far-eastern seas of U.S.S.R. and northern California.

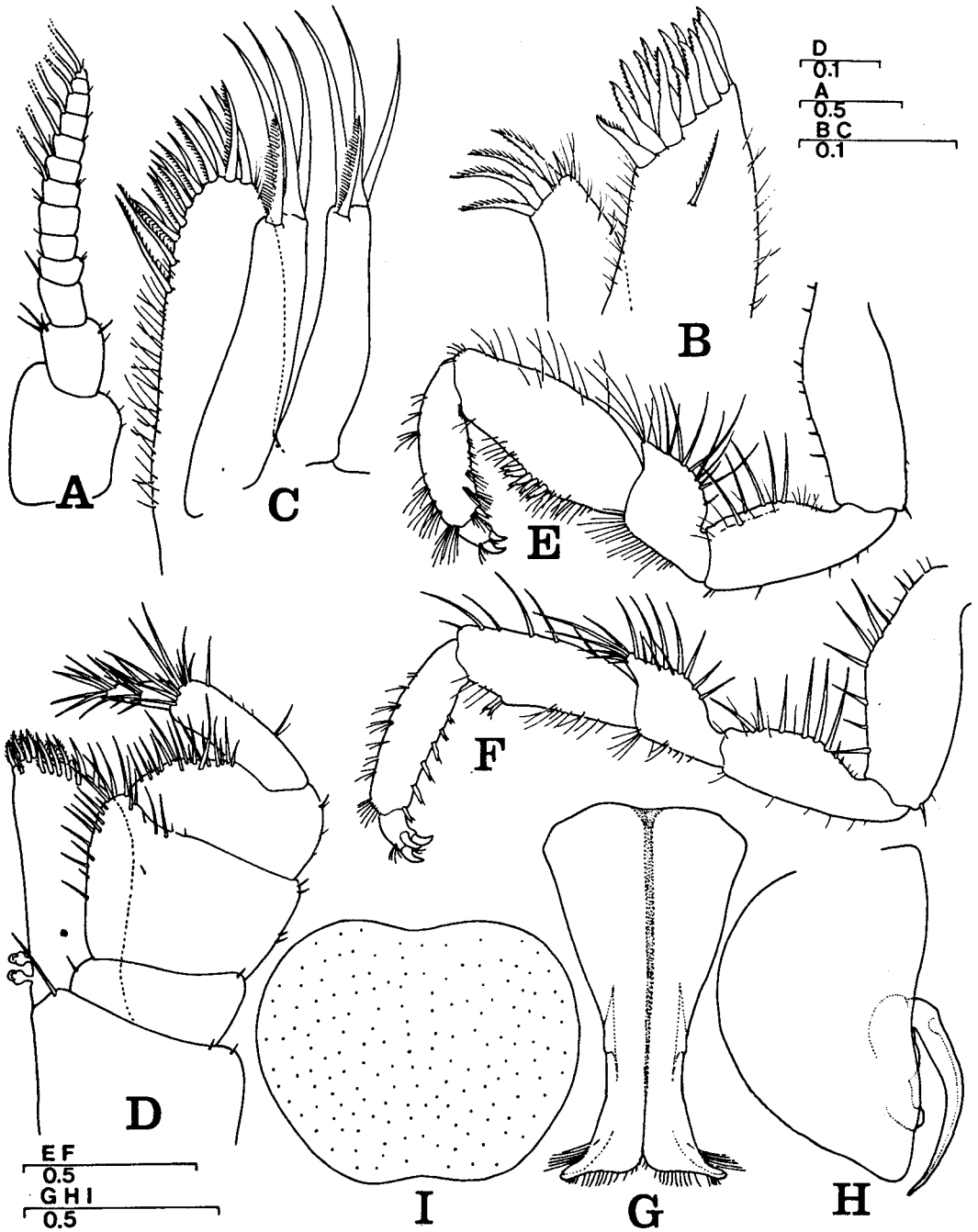


Fig. 3. *Ianiropsis derjugini* Gurjanova. A, antenna 1; B, maxill 1; C, maxilla 2; D, maxilliped; E, pereopod 1; F, pereopod 7; G, pleopod 1; H, pleopod 2; I, female operculum. Scale bars in mm.

2. *Ianiropsis setifera* Gurjanova, 1950 털보 갯가좀(신칭)
Ianiropsis setifera Gurjanova, 1950 (pp. 282-283, fig. 1).

(Figs. 1B, 4)

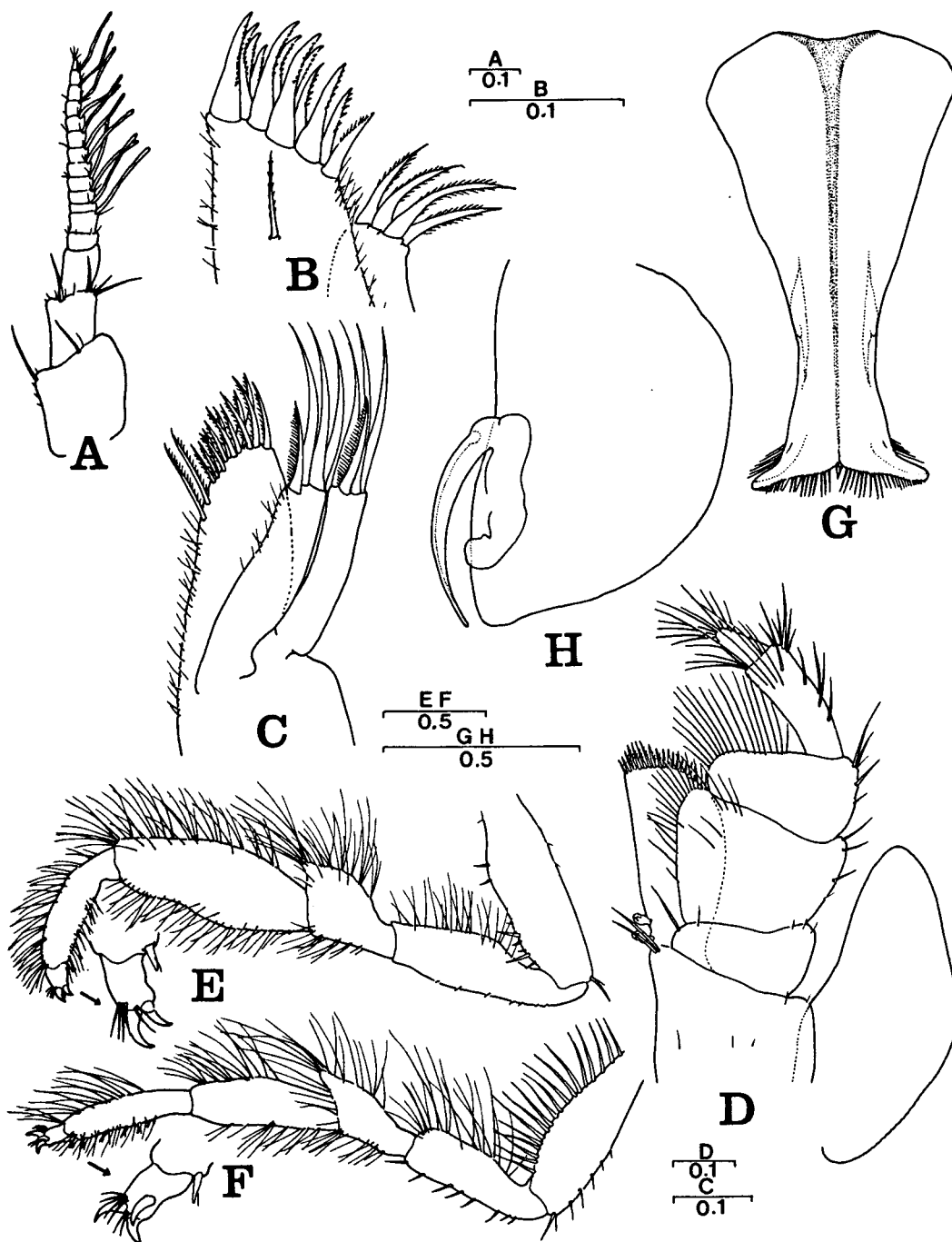


Fig. 4. *Ianiropsis setifera* Gurjanova. A, antenna 1; B, maxilla 1; C, maxilla 2; D, maxilliped; E, pereopod 1; F, pereopod 7; G, pleopod 1; H, pleopod 2. Scale bars in mm.

Ianiropsis setifera: Kussakin, 1962 (pp. 47-49, fig. 24); 1974 (p. 260, fig. 25).

Material examined: 3 ♂♂, Ayajin, Jun. 2, 1981, (D.H. Kwon).

Description: Male- body length up to 5.6mm, width up to 2.2mm.

Color light brown with numerous small chromatophores. Body about 2.5 times as long as wide. Frontal margin of cephalon with an inconspicuous rostrum. Eyes small. Dorsolateral regions of pereonites 1-7 and pleon covered with a number of long setae. Lateral borders of pleotelson smooth, lacking spine-like serrations; posterolateral angles distinct and projecting posteriorly. Uropod not exceeding pleotelson length.

Tip of antenna 1 slightly exceeding peduncular segment 4 of antenna 2. Antenna 2 with peduncular segments 5 and 6 as long as cephalon width. Maxilla 1 with 4 pectinate setae on endopod, 12 denticulate and a subapical serrate setae on exopod. Maxilla 2 with 4 apical setae on each lobe of exopod. Maxilliped with 2 coupling hooks; palp 5-segmented, segment 4 about 2.5 times as long as segment 5; apex of epipod rounded, not pointed. Pereopods 1 and 7 fringed with numerous long setae, except basis and dactylus. Pleopod 1 of male laterally expanded at apex, ending in round lobe.

Remarks: This species can be readily distinguished from the other described *Ianiropsis* species by its numerous long setae on pereon and pleotelson. Except for the setae, it is very similar to *I. derjugini* (See remarks of *I. derjugini*).

Distribution: Korea (East Sea) and far-eastern seas of U.S.S.R.

3. *Ianiropsis epilittoralis* Menzies, 1952 잘록허리갯가좀 (신칭) (Figs. 1C, 5)

Ianiropsis epilittoralis Menzies, 1952 (pp. 149-151, figs. 66-67).

Material examined: 2 ♂♂, Dodong, Ullungdo I., Aug. 6, 1985, (D.H. Kwon); 1 ♂, Tokto I., Jul. 26, 1990, (S.J. Cha); 1 ♂, Chukhangdo I., Jul. 27, 1983, (D.H. Kwon).

Description: Male- body length up to 2.6mm, width up to 0.7mm.

Color yellow but semitransparent with irregular dark brown chromatophores. Body about 3.7 times as long as wide. Frontal margin of cephalon very slightly concave, but bearing an inconspicuous rostrum. Pleotelson with a small, rounded posteromedian lobe; lateral margins with 3 or 4 pairs of spine-like serrations, a long seta situated at base of each serration. Uropods exceeding 3/4 length of pleotelson.

Tip of antenna 1 approaching to distal end of peduncular segment 5 of antenna 2. Antenna 2 longer than body length, each of peduncular segments 5 and 6 slightly longer than half of cephalon width. Maxilla 1 with 4 pectinate setae on endopod, 10 denticulate setae on exopod. Maxilla 2 with 4 apical setae on each lobe of exopod. Maxilliped with 2 coupling hooks; palp 5-segmented; combined length of segments 2 and 3 longer than that of distal two segments; apex of epipod pointed. Pereopods 1 and 7 each with 4 or 5 spines on inferior margin of propodus.

Remarks: Although our specimens fit well with the original description of *I. epilittoralis* Menzies, there are some differences in the number of serrations on lateral borders of pleotelson. The Korean specimens have three or four on each side of the pleotelson, while the type specimens from California have only two (Menzies, 1952, p. 136).

This species is similar to *I. kincaidi* Richardson, 1904 in the general appearance, but different from the latter species in having the shorter peduncular segments of antennae 1 and 2 and the semitransparent body. In addition, one of distinct features of this species includes the pereonites 1-3 separated laterally by notches from the following ones.

Distribution: Korea (Korea Strait and East Sea) and northern California.

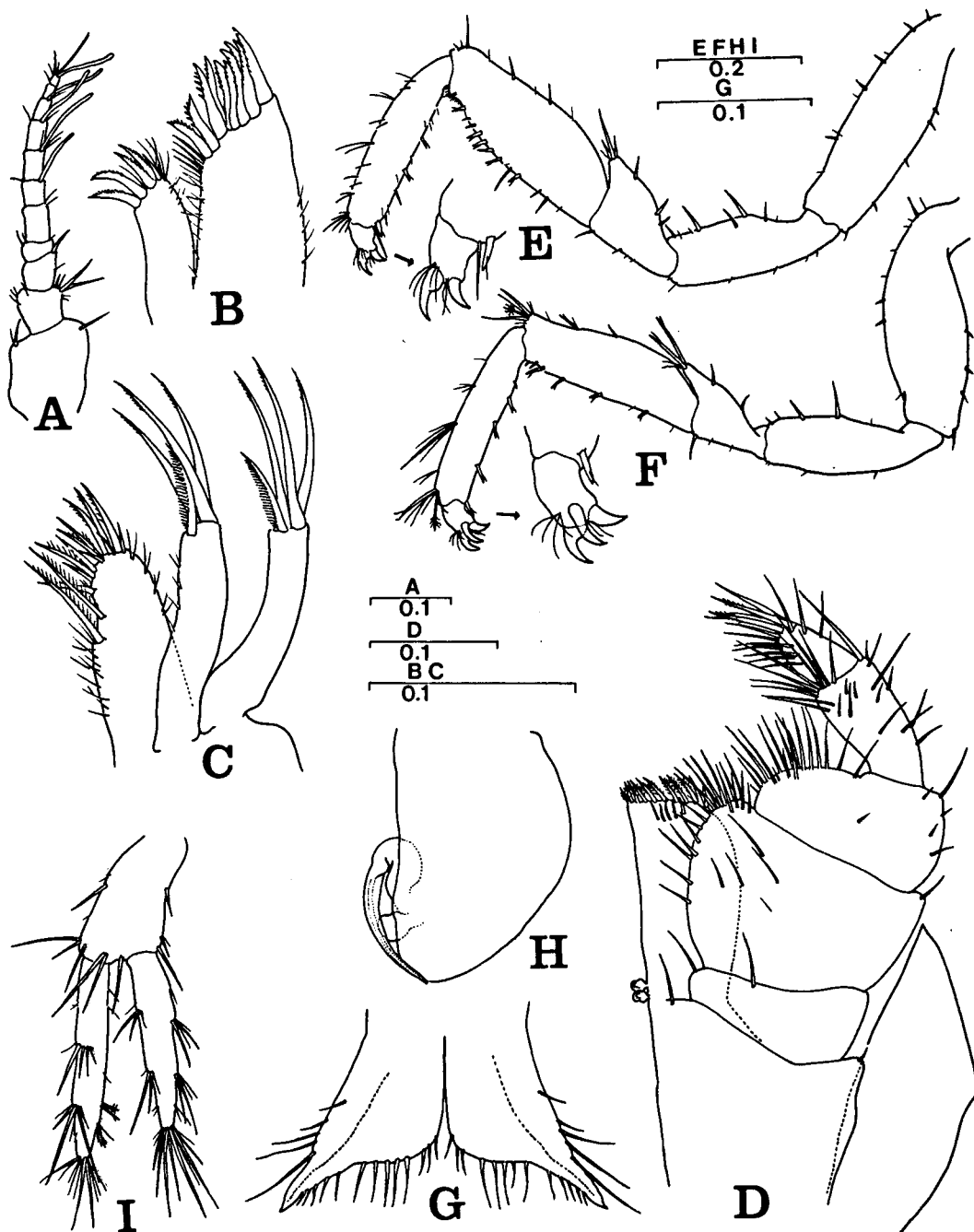


Fig. 5. *Ianiropsis epilittoralis* Menzies. A, antenna 1; B, maxilla 1; C, maxilla 2; D, maxilliped; E, pereopod 1; F, pereopod 7; G, pleopod 1; H, pleopod 2; I, uropod. Scale bars in mm.

4. *Ianiropsis tridens* Menzies, 1952 세가시갯가줄 (신칭) (Figs. 2A, 6)

Ianiropsis tridens Menzies, 1952 (pp. 156-158, fig. 71); 1962 (p. 78, fig. 24); George and Strömberg, 1968 (p. 237).

Material examined: 1 ♂, Ayajin, May 15, 1981, (D.H. Kwon); 4 ♀♀ (4 ovi.), 3 ♂♂, Kijang, Mar. 28,

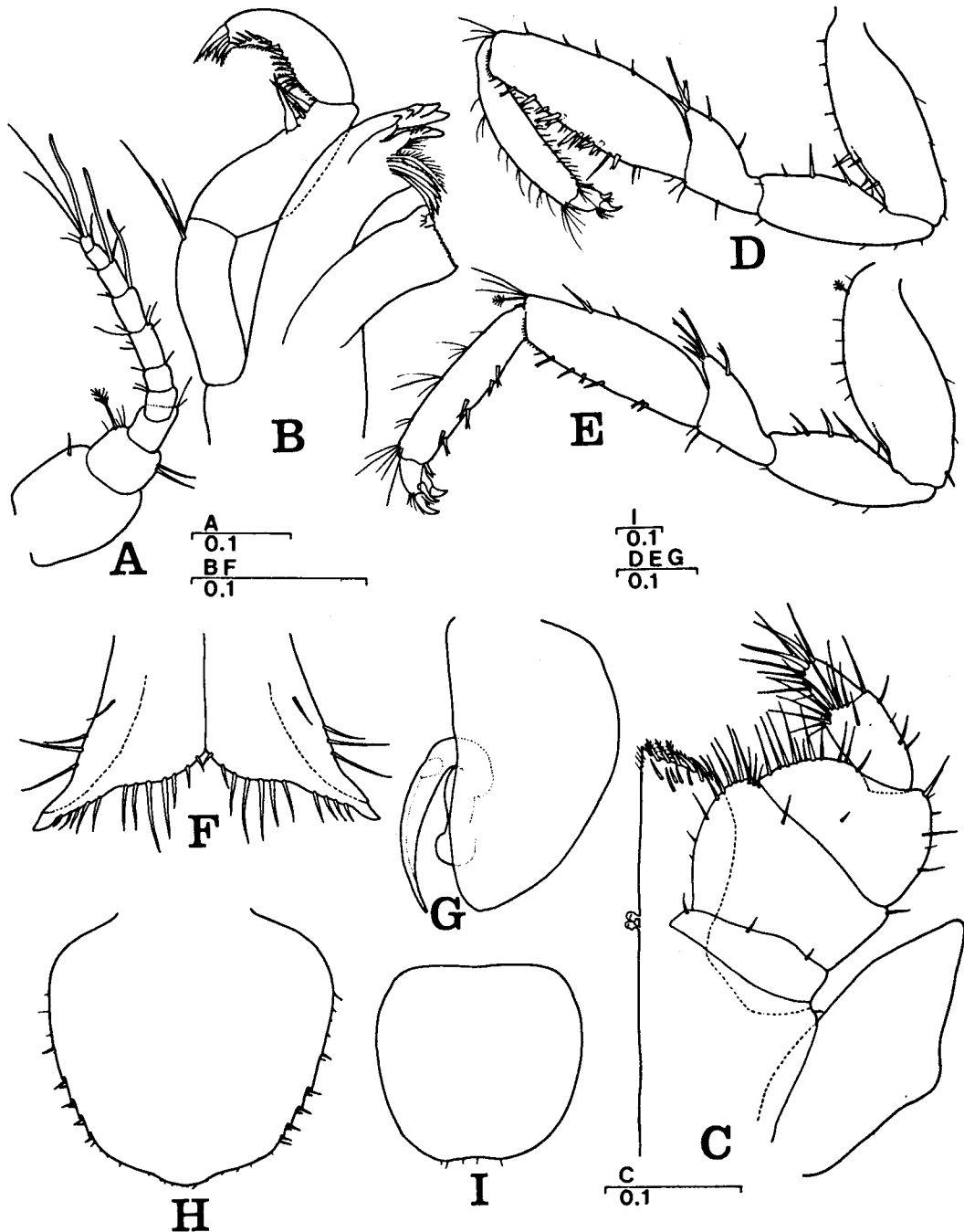


Fig. 6. *Ianiropsis tridens* Menzies. A, antenna 1; B, left mandible; C, maxilliped; D, pereopod 1; E, pereopod 7; F, pleopod 1; G, pleopod 2; H, pleotelson of adult male; I, female operculum. Scale bars in mm.

1987, (D.H. Kwon).

Description: Male- body length up to 3.0mm, width up to 0.95mm.

Color brown with diffused, dark-brown chromatophores. Body about 3 times as long as wide. Cephalon

with an inconspicuous rostrum on frontal margin. Pleotelson with a round posteromedian lobe; each margin with three or four spine-like serrations and several unequal setae. Uropods exceeding 3/4 length of pleotelson.

Tip of antenna 1 approaching to distal end of peduncular segment 5 of antenna 2. Antenna 2 as long as body length, each of peduncular segments 5 and 6 about half length of cephalon width. Left mandibular palp 3-segmented, segment 1 with 2 unequal simple setae distally, segment 2 with 3 denticulate setae; incisor and lacinia each with 5 teeth, setal row with a pectinate and 4 serrate setae. Maxilliped with 2 coupling hooks; maxillipedal palp 5-segmented, total length of proximal three segments about 1.7 times that of distal two segments; distal tip of epipod slightly rounded, not pointed. Pereopod 1 with about 15 spines of two rows on inferior margin of carpus and with a spine on infero-distal angle of propodus; pereopod 7 with 7 spines on inferior margins of carpus and propodus, respectively. Lateral apex of male pleopod 1 pointed and directed obliquely backward. Distal margin of female operculum concave, with several simple setae.

Remarks: There is a variation in the number of serrations on lateral borders of pleotelson, i.e., three (in 1.9mm body length) or four (in 3.0mm body length) on each side. However, Menzies's specimens (1952, p. 136) from northern California show three serrations only.

This species very much resembles *I. serricaudis* in the general appearance and the form of the male pleopod 1, but can be readily distinguished from the latter by the antenna 1 with dilated flagellar segments and the maxillipedal palp with shorter segments.

Distribution: Korea (Korea Strait and East Sea), San Juan Island and northern California and Chile.

5. *Ianiropsis serricaudis* Gurjanova, 1936 긴턱갯가좁 (신칭) (Figs. 2B, 7)

Janiropsis serricaudis Gurjanova, 1936 (pp. 251-252, fig. 1).

Ianiropsis serricaudis: Kussakin, 1962 (pp. 49-50, fig. 25).

Material examined: 7 ♀♀ (1 ovi.), 3 ♂♂, Songjŏng, Apr. 24, 1983, (D.H. Kwon).

Description: Male- body length up to 3.1mm, width up to 1.0mm.

Body speckled with numerous dark-brown chromatophores, and about 3 times as long as wide. Cephalon with an inconspicuous rostrum on frontal margin. Pleotelson with a small, round postero-median lobe; each lateral border with three or four spine-like serrations, 2 or 3 unequal setae situated at base of each serration. Uropods slightly longer than pleotelson length.

Tip of antenna 1 approaching to half of peduncular segment 5 of antenna 2. Antenna 2 much longer than body length, each of peduncular segments 5 and 6 slightly longer than cephalon width. Mandibular palp 3-segmented, segment 2 with two long and a shorter denticulate setae; left mandible with incisor bearing 5 teeth, setal row bearing 5 setae; right mandible with incisor bearing 5 teeth, setal row bearing 9 setae. Maxilla 1 with 4 pectinate and a small setae on endopod, 12 denticulate and a subapical simple setae on exopod. Maxilla 2 with 4 apical setae on each lobe of exopod. Maxilliped with 2 coupling hooks; palp 5-segmented, segment 5 slightly shorter than segment 4, combined length of distal two segments as long as that of proximal three segments; proximal half of segment 3 produced inward; apex of epipod pointed. Pereopod 1 with several spines on inferior margin of carpus, a spine on infero-distal angle of propodus; pereopod 7 with 5 spines on inferior margin of propodus. Lateral apex of male pleopod 1 pointed and directed obliquely backward. Distal margin of female operculum concave, bearing several simple setae.

Remarks: This species is allied to *I. notoensis* Nunomura, 1985 in both having very long maxillipedal palps, but can be easily distinguished from the latter by the elongated peduncular segments 5 and 6 of

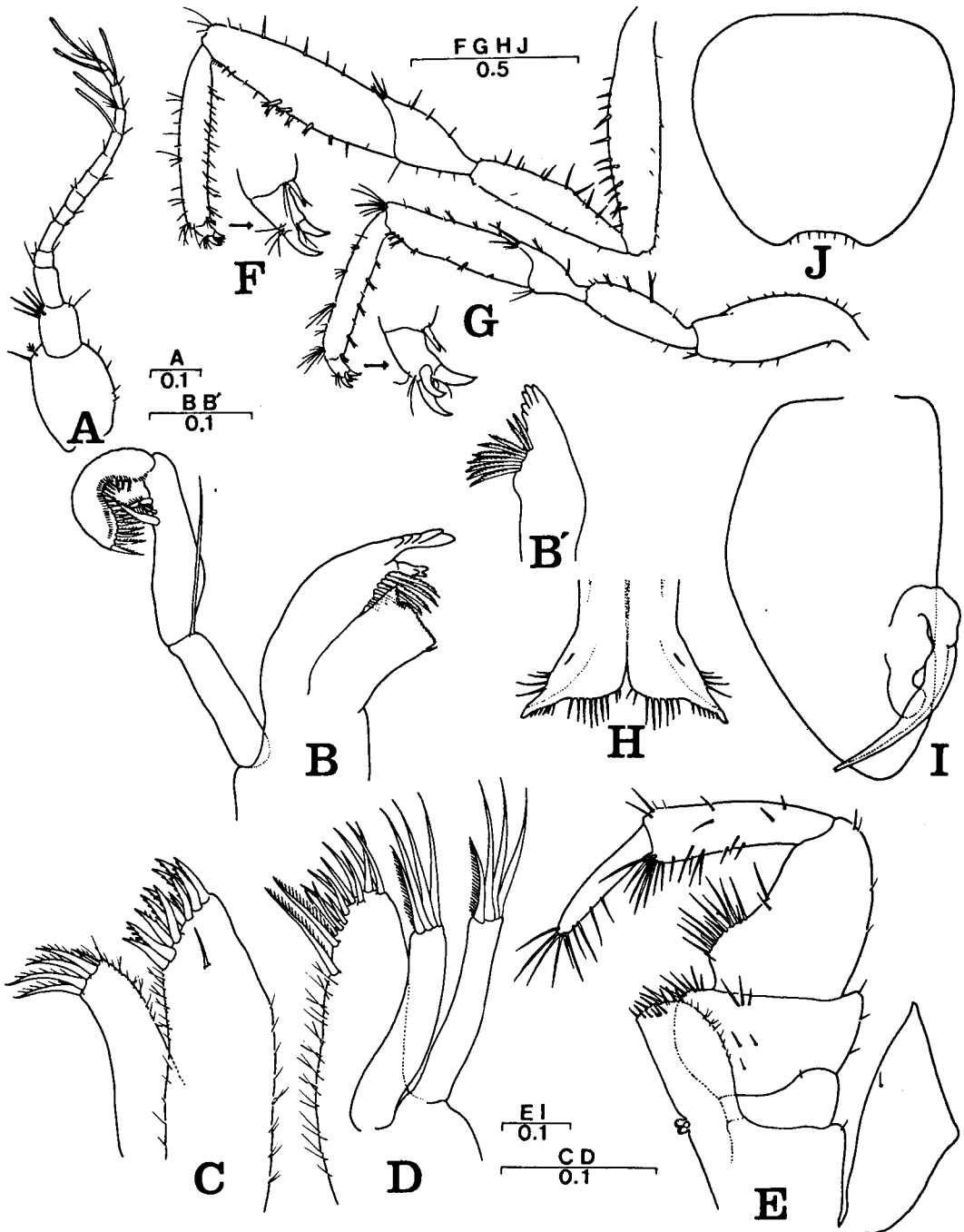


Fig. 7. *Ianiropsis serricaudis* Gurjanova. A, antenna 1; B, left mandible; B', incisor region of right mandible; C, maxilla 1; D, maxilla 2; E, maxilliped; F, pereopod 1; G, pereopod 7; H, pleopod 1; I, pleopod 2; J, female operculum. Scale bars in mm.

antenna 2.

Distribution: Korea (Korea Strait) and far-eastern seas of U.S.S.R.

6. *Ianiropsis koreaensis* n. sp. 둥근꼬리갯가좀 (신칭)

(Figs. 2C, 8, 9)

Material examined: Holotype- adult male, body length 3.1mm, width 0.95mm (IJB: 9005), Kijang,

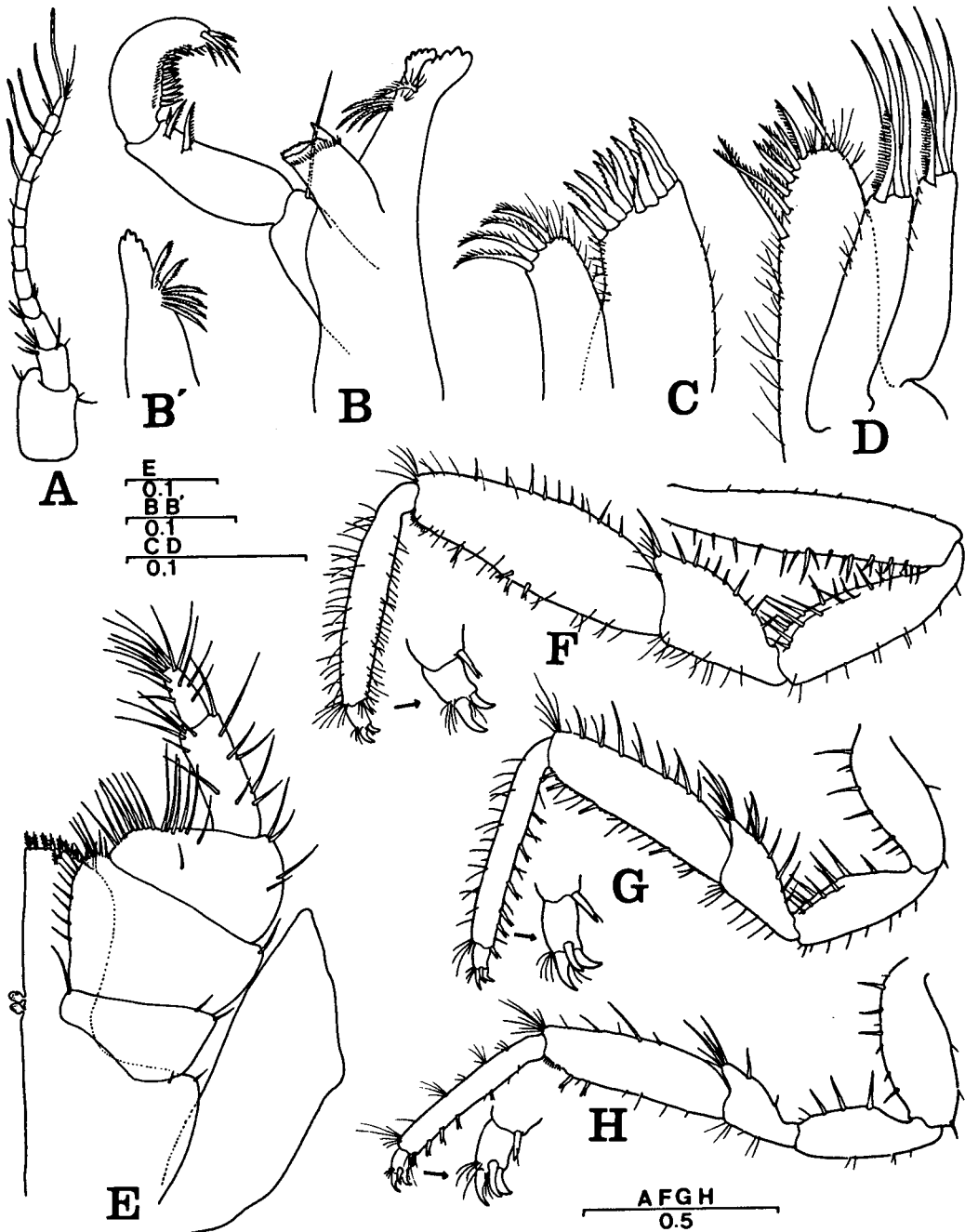


Fig. 8. *Ianiropsis koreaensis* n. sp. (paratype). A, antenna 1; B, left mandible; B', incisor region of right mandible; C, maxilla 1; D, maxilla 2; E, maxilliped; F, pereopod 1; G, pereopod 2; H, pereopod 7. Scale bars in mm.

Yongsan-gun, Kyongsangnam-do (35°12' N, 129°14' E), under rocks in the intertidal zone, Jul. 15, 1990, (I.K. Jang).

Paratypes: 36 ♀♀ (11 ovi.), body length 2.1-3.2mm, width 0.8-1.2mm, 27 ♂♂, body length 1.6-3.2mm, width 0.6-1.0mm (IJB: 9006), collection details as the holotype. Type specimens deposited in the Department of Biology, Inje University.

Additional material examined: 1 ♀, 1♂, Sokch'o, May 19, 1980, (D.H. Kwon); 21 ♀♀ (1 ovi.), 13 ♂♂, Kimnyŏng, Cheju I., Jul. 18, 1979, (D.H. Kwon); 4 ♀♀ (2 ovi.), 9 ♂♂, Namwon, Chju I., Apr. 12, 1987, (D.H. Kwon); 33 ♀♀ (10 ovi.), 23 ♂♂, Uldo I., Aug. 3, 1982, (D.H. Kwon).

Description: Paratype male.

Body speckled with numerous dark brown chromatophores, about 3.2 times as long as wide. Frontal margin of cephalon with a small medial rostrum. Pleotelson ovoid in outline; posterior margin with a small, rounded median lobe; lateral margins slightly serrated and bearing several unequal setae. Uropods not exceeding pleotelson length.

Tip of antenna 1 slightly exceeding half of peduncular segment 5 of antenna 2. Antenna 2 about 1.5 times body length, each of peduncular segments 5 and 6 slightly longer than cephalon width. Mandible with 3-segmented palp, segment 1 with a long simple seta, segment 2 with 3 unequal setae; left mandible incisor with 5 teeth, lacinia with 5 teeth, setal row with 4+1 setae; right mandible incisor with 5 teeth, lacinia lacking, setal row with 6 setae. Maxilla 1 with 4 pectinate setae on endopod, 12 denticulate setae on exopod. Maxilla 2 with 11 setae on endopod, 4 apical setae on each lobe of exopod.

Maxilliped with 2 coupling hooks; palp 5-segmented, combined length of segments 2 and 3 about equal to that of distal two segments; epipod triangular in shape, apex not pointed. Pereopod 1 with 4 spines

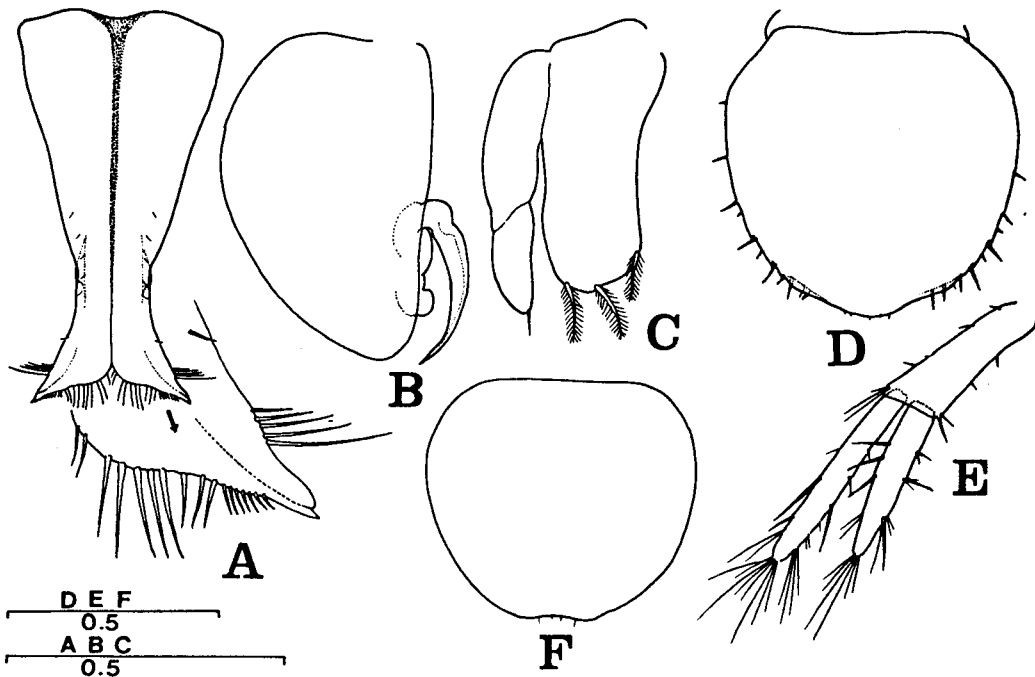


Fig. 9. *Ianiropsis koreaensis* n. sp. (paratype). A, pleopod 1; B, pleopod 2; C, pleopod 3; D, pleotelson; E, uropod; F, female operculum. Scale bars in mm.

on inferior margin of carpus and a spine on infero-distal angle of propodus. Pereopod 2 with 4 and 6 spines on inferior margins of carpus and propodus respectively, that of carpus slightly serrated. Pereopod 7 with 2 and 5 spines on inferior margins of carpus and propodus, respectively. Lateral apex of male pleopod 1 bifurcate, pointed, directed laterally. Pleopod 3 of male with endopod bearing 3 plumose setae on distal margin; endopod 2-segmented, with a simple apical seta on distal segment. Distal margin of female operculum slightly concave.

Remarks: *Ianiropsis koreaensis* n.sp. shows a certain degree of variation among individuals in the size of spine-like serrations on the lateral margins of the pleotelson. Some have three or four distinct serrations on each side of the pleotelson, while in others those are much less conspicuous.

This species is similar to *I. longiantennata* Thielemann, 1910 in the general appearance and the peduncular segments of antenna 2, but can be distinguished from the latter by the following features. *I. koreaensis* has very long antennae 2, about 1.5 times body length, while those of *I. longiantennata* are as long as the body length; the lateral apex of male pleopod 1 of the former is triangular in shape, consisting of a round, blunt upper lobe and a pointed lower one, but that of the latter is composed of two elongated, slender lobes ending in pointed tips. Also, the present species is easily separated from the other described *Ianiropsis* species by the ovoid shape of pleotelson and pereonites 2 and 3 with acutely pointed anterolateral angles, and dark colored body with dense pigmentation.

Distribution: Korea (Yellow Sea, Korea Strait and East Sea).

DISCUSSION

It is difficult to distinguish the various species of the genus *Ianiropsis* because the known species of the genus are very similar to one another and there are few reliable specific characters. Moreover, some of the characters used by the previous authors show some variations with age or among individuals. Sivertsen and Holthuis (1979) discussed the variabilities in *I. longipes* from Tristan da Cunha Archipelago. They found a certain degree of variation with age or among individuals in the color of the eyes, the amount and the color of chromatophores of the body, the number of marginal setae of the male pleopod 1, the relative length of the pereopod 1 to the body length, that of the uropod to the pleotelson length, and the number of peduncular articles and the relative length of the fifth and sixth peduncular articles of the antenna 1.

The number of spine-like serrations on the lateral borders of pleotelson are also variable. *I. epilittoralis* and *I. tridens* from the northern California show two and three serrations on each side of the pleotelson, respectively (Menzies, 1952). However, in the Korean specimens of these two species the number of the serrations varies three to four with age.

As mentioned by Menzies (1952) the most reliable diagnostic feature seems to be present on the male pleopod 1, particularly at the lateral apex. In the course of examination of our specimens, we found that the relative length of the distal two peduncular segments of antenna 2 and those of each segment of the maxillipedal palp hardly change with age and among individuals of the same species.

Most species belonging to the *Ianiropsis* have been found in the intertidal zones where they occurred in small pools on the surface of rocks, under rocks and among sponges, coelenterates, bryozoans, tunicates and algae (especially *Laminaria*, *Macrocystis* and *Egregia holdfasts*) (Menzies, 1952, 1962; Naylor, 1972; Kussakin, 1974). A few species are sometimes found from shallow subtidal zone to the depth of 40m (= *I.*

chilensis) or 60 μ m (= *I. magnocula* and *I. longipes*). All the Korean species have been collected from the middle and lower intertidal zones although we didn't make the exact records on the habitats they were collected from.

Key to the Korean species of the genus *Ianiropsis*

- 1a. Distal margin of pleotelson with two distinct concavities 2
- b. Distal margin of pleotelson lacking concavities 3
- 2a. Body covered with numerous long setae *setifera*
- b. Body lacking long setae *derjugini*
- 3a. Last peduncular segment of antenna 2 shorter than cephalon width 4
- b. Last peduncular segment of antenna 2 longer than cephalon width 5
- 4a. Pereonites 1-3 separated laterally by notches from the following ones; anterolateral angles of pereonite 2 pointed *epilittoralis*
- b. Pereonites 1-3 not separated laterally by notches from the following ones; anterolateral angles of pereonite 2 round *tridens*
- 5a. Pleotelson subtriangular in outline; anterolateral angles of pereonite 2 round *serricaudis*
- b. Pleotelson ovoid in outline; anterolateral angles of pereonite 2 pointed *koreaensis* n. sp.

ABSTRACT

Ianiropsis material collected from 11 localities of the Korean coasts were studied. Six species including one new species were identified to be new to Korea: *Ianiropsis derjugini* Gurjanova, *I. setifera* Gurjanova, *I. epilittoralis* Menzies, *I. tridens* Menzies, *I. serricaudis* Gurjanova and *I. koreaensis* n. sp. All species are described and figured with a key to the Korean species of the *Ianiropsis*.

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