

## First Record of the Mysids, Genus *Erythropus* (Crustacea: Mysida: Mysidae) from Korea

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### ABSTRACT

The tribe Erythropini Hansen, 1910 belonging to the subfamily Mysinae Haworth, 1825, is one of the peculiar groups mainly found in the pelagic or deep sea. Of these, the genus *Erythropus* G.O. Sars, 1869 including two mysids, *Erythropus minuta* Hansen, 1910 and *Erythropus nana* W. Tattersall, 1922, is reported for the first time from Korea. The genus is easily distinguished from other genera by the antennal scale with a terminal strong spine, the carpus of third to eighth thoracopods divided into the propodus by an oblique articulation, and the trapezoidal telson. The morphological descriptions and the illustrations of these species are given with photographs. As a result of this study, 49 species of mysids including these two species are now recorded in the Korean fauna.

**Keywords:** taxonomy, Mysida, Erythropini, *Erythropus*, *Erythropus minuta*, *Erythropus nana*, Korea

### INTRODUCTION

The tribe Erythropini Hansen, 1910 belonging to the subfamily Mysinae, is a peculiar group mainly found in the pelagic or deep sea (Ii, 1964). Although it consists of about 300 species of 50 genera worldwide, the fauna of Korean mysids is poorly known compared with that of other regions. So far only 4 species of 4 genera belonging to the tribe Erythropini have reported from Korea: *Holmesiella anomala* Ortmann, 1908, *Hypererythropus zimmeri* Ii, 1937, *Meterythropus microphthalmus* W. Tattersall, 1951, and *Pleurerythropus secunda* Murano, 1970. In the present study, the genus *Erythropus* G.O. Sars, 1869 including two species, *Erythropus minuta* Hansen, 1910 and *Erythropus nana* W. Tattersall, 1922, is reported for the first time from coastline of south Korea. They are typically distinguished by the following characteristics: 1) antennal scale terminating in a strong spine, 2) endopod of third to eighth thoracopods long and slender, carpus divided into propodus by oblique articulation, propodus 2-segmented, and 3) telson very short and trapeziform in shape.

### MATERIALS AND METHODS

These species were collected from shallow waters by a light trap. Specimens were preserved in 70% ethyl alcohol and illustrations were drawn with the aid of compound microscope (Model BX-60; Olympus, Tokyo, Japan) fitted with a drawing tube. Images were recorded using a digital camera (Model D7000; Nikon, Tokyo, Japan), and produced with Helicon Focus software (Model Helicon Focus; Helicon Soft Ltd., Kharkov, Ukraine). Body length was measured from the tip of the rostrum to the distal apex of the telson excluding the spine. The simple setae and plumage of the plumose setae on the margin of antennae, antennules, mouthparts, and uropods are omitted from the figures. Terminology for the dissection and measurement is after Tattersall and Tattersall (1951). All specimens have been deposited in the Marine Arthropod Depository Bank of Korea (MADBK), Seoul National University.

### SYSTEMATIC ACCOUNTS

Order Mysida Haworth, 1825

Family Mysidae Dana, 1850

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Fig. 1. *Erythropis minuta* Hansen, 1910, male. Whole animal, 4.0 mm.

Subfamily Mysinae Haworth, 1825  
Tribe Erythropini Hansen, 1910  
<sup>1</sup>\*Genus *Erythropis* G.O. Sars, 1869

<sup>2</sup>\**Erythropis minuta* Hansen, 1910 (Figs. 1-3)

*Erythropis minuta* Hansen, 1910: 64; W. Tattersall, 1922: 462, fig. 9a-b; Ii, 1964: 352, fig. 89; Pillai, 1965: 1704, fig. 49; Mauchline and Murano, 1977: 54; Müller, 1993: 86.

**Material examined.** 2♂♂, Korea: Jeollabuk-do, Gunsansi, 6 Jul 2006.

**Description.** Carapace (Fig. 2A) with anterior margin produced into low triangular rostral plate with blunted tip, reaching base of first segment of antennular peduncle; posterior margin emarginated, antero-lateral corners rounded form.

Eye (Figs. 1, 2A) rather small, reaching end of second segment of antennular peduncle; cornea reniform, occupying half of whole eye; eyestalk without denticles.

Antennal scale (Fig. 2B) lanceolate with round apex, about 3.5-4 times as long as broad; distal suture scarcely developed; inner margin convex with setae; outer margin slightly convex without setae, bearing terminal one strong spine and 4 additional stout spines which arranged at almost equal intervals along margin. Antennal peduncle (Fig. 2B) 3-segmented; first segment unarmed; second one with 3 simple setae on distal margin; third one with 2 simple setae on distal margin, subequal to first.

Antennular peduncle (Fig. 2C) 3-segmented; first segment subequal to third in length, with well developed processus masculinus covered in hirsute hair (hair omitted in figure);

second and third segments unarmed.

Mandibular palp (Fig. 2E) 3-segmented; second segment slightly swollen, 1.5 times as long as third.

Maxilla, and endopod of first and second thoracopods (Fig. 2D, F, G) showing no marked difference from those in other species.

Endopod of third to eighth thoracopods all broken and extremely damaged due to bad condition of specimens.

Pleopod of male (Fig. 3A, B) well developed and biramous; both endopod and exopod 6-segmented and subequal in length.

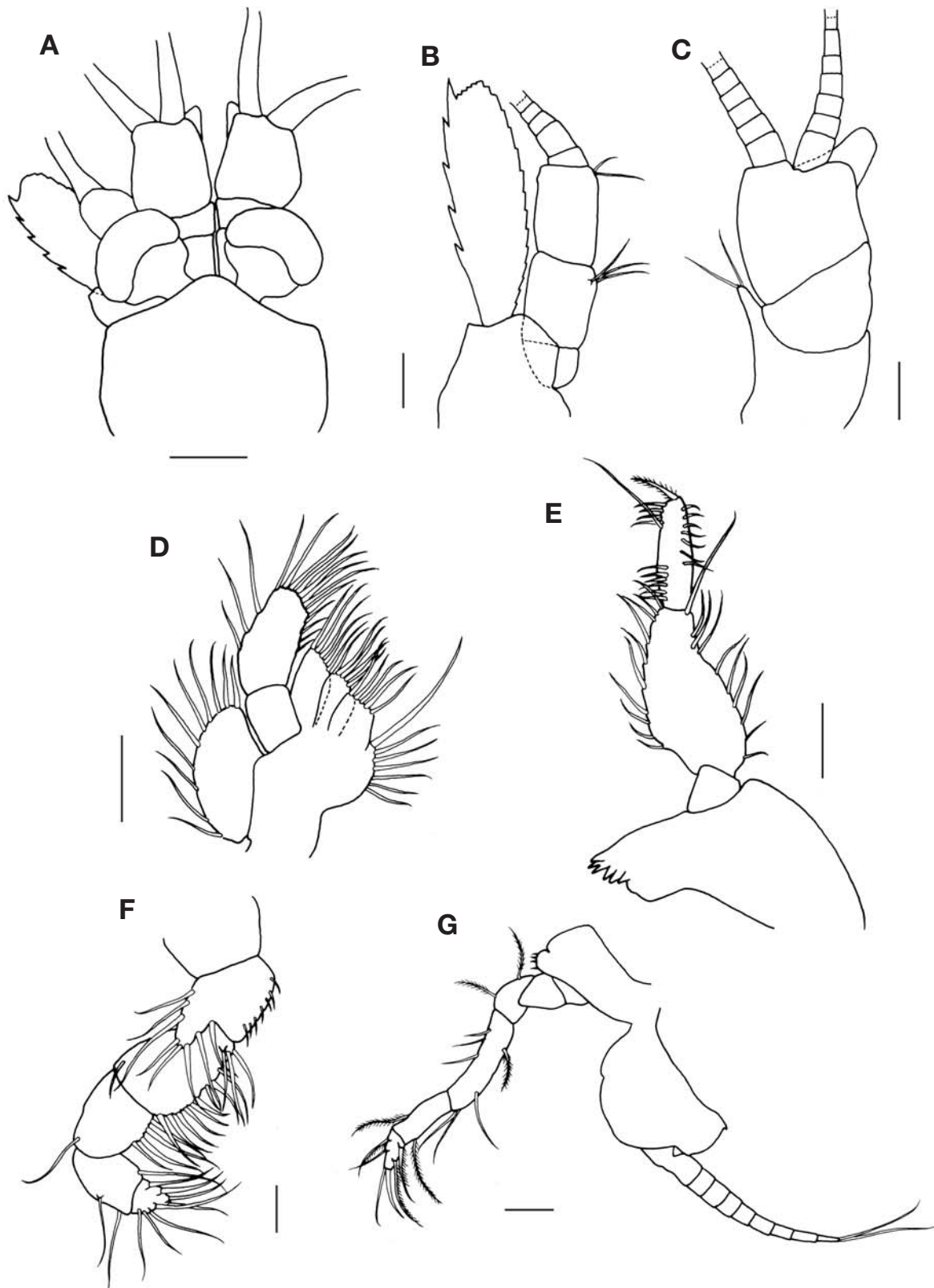
Inner uropod (Fig. 3C) without spines in ventral statocyst region; outer uropod 1.2 times longer than inner one.

Telson (Fig. 3D) broadly distinct trapezoidal form; lateral margin of proximal 1/4 naked, remaining region armed with several serrulates closely; apex broadly truncated, 2/5 length of base, bearing 2 pairs of stout spines and 1 pair of secondary plumose setae; inner ones 1.5 times longer than outer ones and secondary plumose setae very long, almost twice as long as outermost spines.

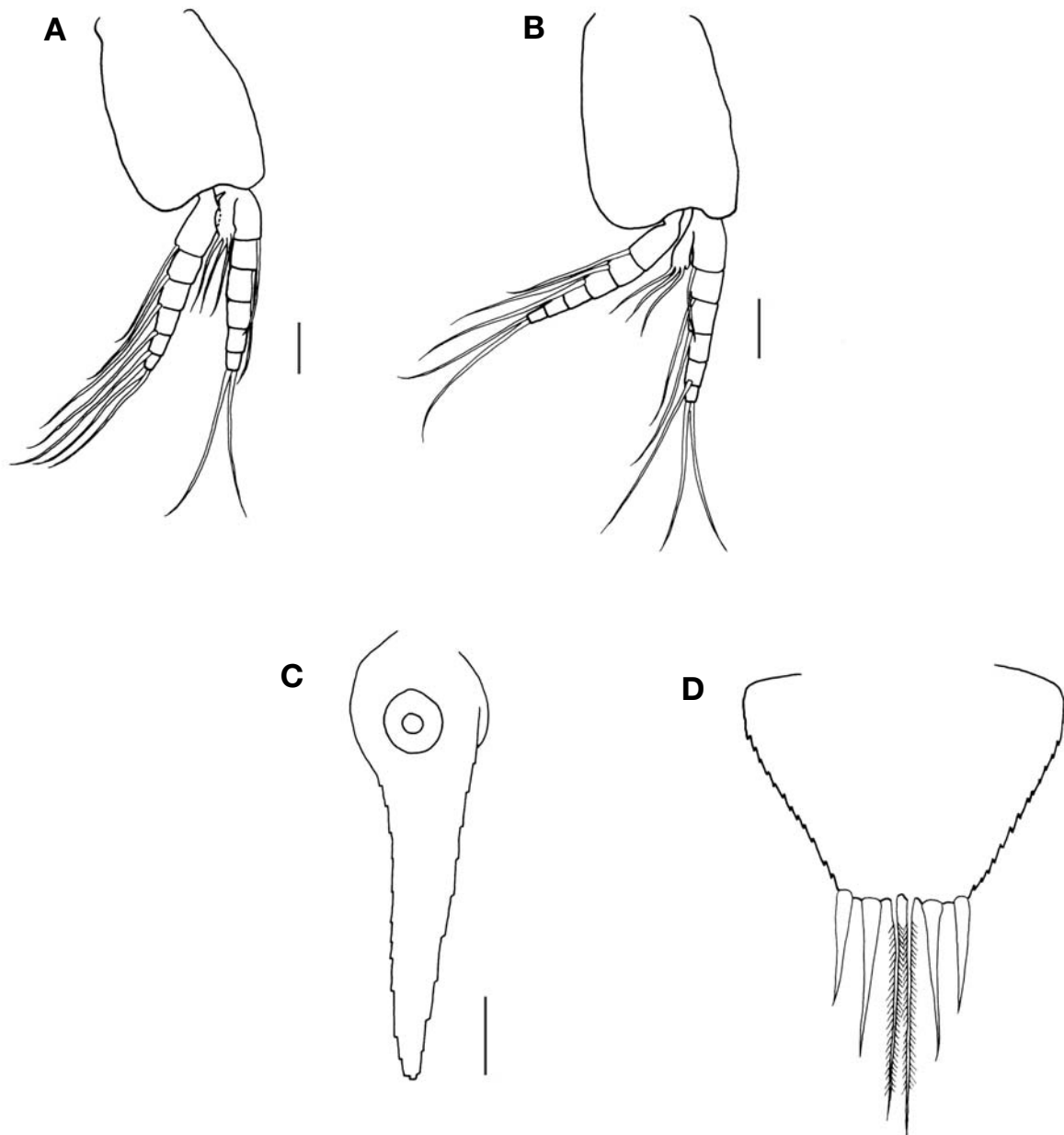
**Distribution.** Korea (present study), Japan, Malaysia, Thailand, Singapore, and Taiwan.

**Remarks.** Two present specimens agree well with Hansen's (1910) original description of *E. minuta* except for one character. They had four arranged spines excluding apical teeth on the outer margin of the antennal scale. The number of spines on that region, however, was 3 in both the record of Hansen (1910) and the illustration of Tattersall (1922), and 2 in the description of Ii (1964). It may be attributable to the local variation.

Korean name: <sup>1</sup>\*짧은꼬리곤쟁이속 (신칭), <sup>2</sup>\*툽니가시곤쟁이 (신칭)



**Fig. 2.** *Erythrops minuta* Hansen, 1910, male. A, Anterior part of carapace and cephalic appendages; B, Antenna; C, Antennule; D, Maxilla; E, Mandible; F, Endopod of first thoracopod; G, Second thoracopod. Scale bars: A=0.2 mm, B-E, G=0.1 mm, F=0.05 mm.



**Fig. 3.** *Erythrops minuta* Hansen, 1910, male. A, Third pleopod; B, Fourth pleopod; C, Inner uropod; D, Telson. Scale bars: A-D=0.1 mm.

<sup>1</sup>\**Erythrops nana* W. Tattersall, 1922 (Figs. 4-6)

*Erythrops nana* W. Tattersall, 1922: 463, fig. 10a-c; Pillai, 1965: 1704, fig. 48; Mauchline and Murano, 1977: 54; Müller, 1993: 86.

**Material examined.** 1 ♂, Korea: Gyeongsangnam-do: Tongyeong-si, Yokji-myeon, Isl. Yokjido, 8 Dec 2010, in light

trap; 3 ♂♂, 1 ♀, Nodae-ri, Isl. Sangnodaedo, 31 Aug 2011, in light trap.

**Description.** Carapace (Fig. 5A) with anterior margin produced into triangular rostral plate with pointed tip, reaching half of first segment of antennular peduncle; posterior margin emarginated, antero-lateral corners pointed form.

Eye (Figs. 4, 5A) normal, cornea distinct reniform in dor-

Korean name: <sup>1</sup>\*짧은꼬리곤쟁이 (신칭)



**Fig. 4.** *Erythrops nana* W. Tattersall, 1922, male. Whole animal, 3.7 mm.

sal view, occupying 1/3 of whole eye; eyestalk elongated without denticles.

Antennal scale (Fig. 5B) lanceolate with round apex, about 4 times as long as broad; distal suture occupying 1/11 of whole length; inner margin nearly straight with setae; outer margin slightly concave, without setae, and terminating one strong spine. Antennal peduncle (Fig. 5B) 3-segmented; second segment with 2 simple setae on distal margin, twice as long as first; third segment longest, with 2 simple setae on distal margin.

Antennular peduncle (Fig. 5C) 3-segmented; first segment equal to third in length, about 2 times as long as second one, with large processus masculinus covered in hirsute hair (hair omitted in figure).

Maxilla (Fig. 5D) armed with plumose setae along margin; endopod 2-segmented, second segment about 1.7 times as long as broad; exopod broad and round in shape.

Maxillule, mandible (Fig. 5E, F), and endopod of first and second thoracopods (Fig. 5G, H) showing no remarkable characteristics.

Endopod of third to eighth thoracopods (Fig. 6A-D) with 3-subsegmented carpopropodus; proximal segment of carpopropodus longest, distal articulation distinctly oblique, remaining two segments half as long as first one, dactylus slender; basal plate of exopod of thoracopods narrow without spinules.

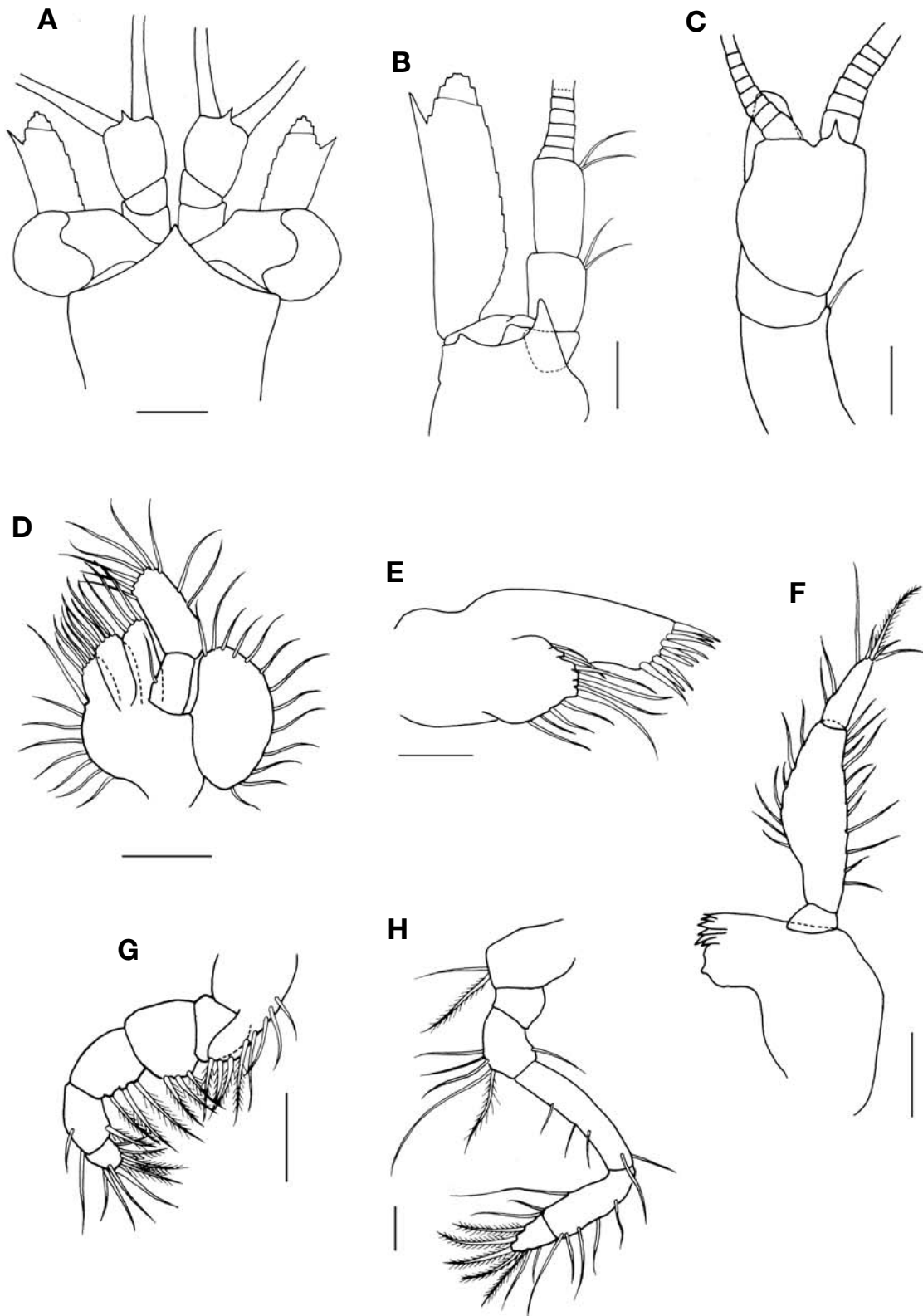
Pleopod of male (Fig. 6E, F) well developed, biramous; both endopod and exopod 5-segmented and subequal in length.

Inner uropod (Fig. 6G) without spines in ventral statocyst region; outer uropod 1.2 times longer than inner one.

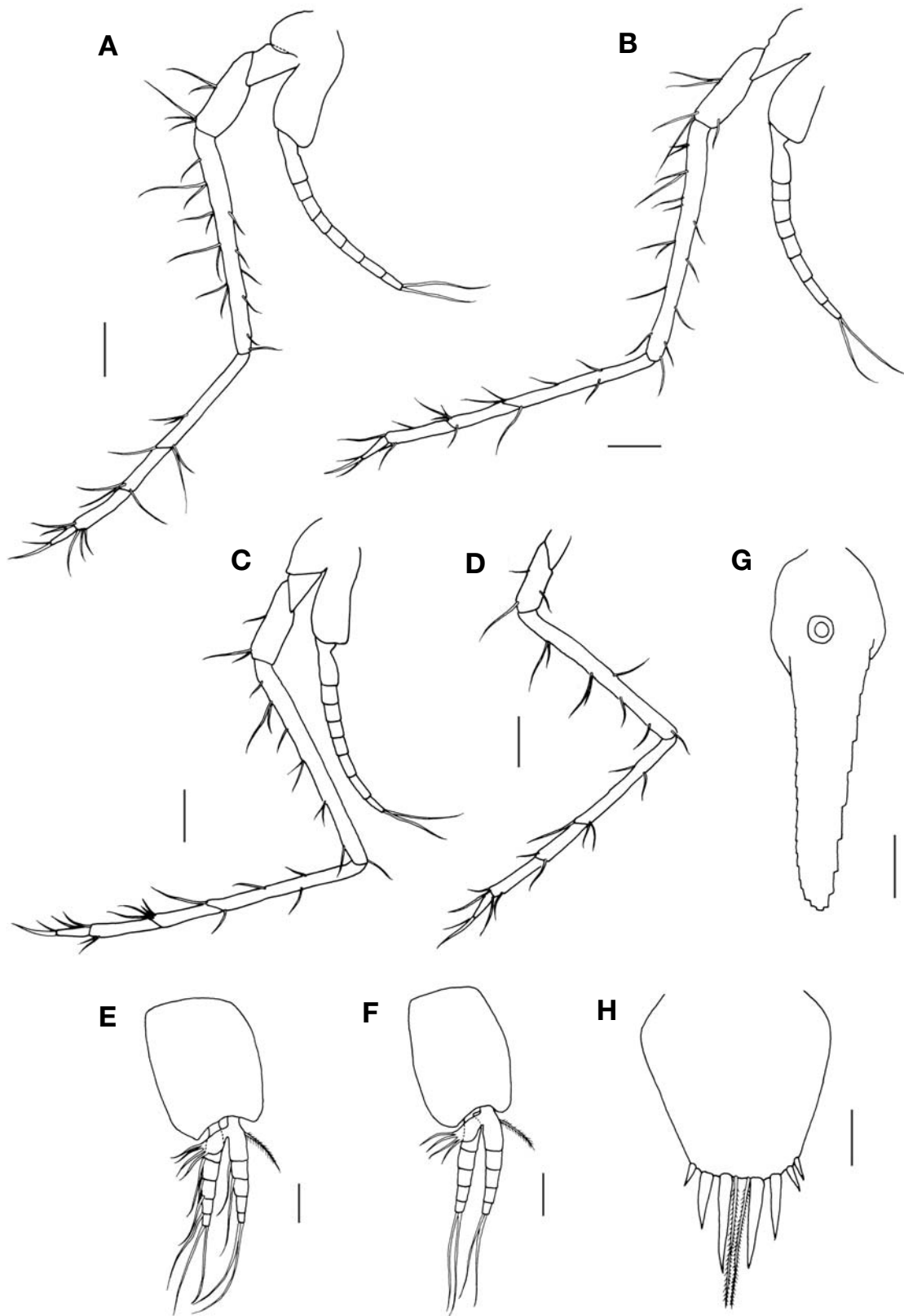
Telson (Fig. 6H) broadly trapezoidal form; lateral margin of proximal 1/5 point strongly convex, naked as whole; apex broadly truncated, usually armed with 3 pairs of stout spines and 1 pair of secondary plumose setae, occasionally extra outermost spine in one side; innermost spines half as long as telson, subsequent pair of spines 2/3 length than inner ones, and outermost spines especially very short, less half as long as medium spines; secondary plumose setae very long, twice as long as medium spines.

**Distribution.** Korea (present study), Japan, and Andaman Island (Indian Ocean).

**Remarks.** *Erythrops nana* was briefly described on the basis of remarkable characters in the original description of W. Tattersall (1922). After that, this species was also described with main characters and recorded with simple illustration. Therefore, the full description and figures of this species are reported in the present study. The examined specimens coincide with previous records except two minor differences: 1) Tattersall and Tattersall (1951) noted that the genus *Erythrops* had the antennal scale without distal suture. On the other hand, the distal suture was observed in this study as well as other previous studies (W. Tattersall, 1922; Pillai, 1965); 2) The number of spines on the distal part of the telson were three pairs in the all previous studies, while some of our specimens had extra one spine on one side. This difference may be attributable to the individual variation.



**Fig. 5.** *Erythropus nana* W. Tattersall, 1922, male. A, Anterior part of carapace and cephalic appendages; B, Antenna; C, Antennule; D, Maxilla; E, Maxillule; F, Mandible; G, Endopod of first thoracopod; H, Endopod of second thoracopod. Scale bars: A=0.2 mm, B-D, F-H=0.1 mm, E=0.05 mm.



**Fig. 6.** *Erythrops nana* W. Tattersall, 1922, male. A, Fourth thoracopod; B, Fifth thoracopod; C, Seventh thoracopod; D, Endopod of eighth thoracopod; E, Third pleopod; F, Fourth pleopod; G, Inner uropod; H, Telson. Scale bars: A-H=0.1 mm.

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