

Short communication

## The First Record of the Genus *Hemiaegina* (Crustacea, Amphipoda, Caprellidae) from Jeju-Island, Korea

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### ABSTRACT

*Hemiaegina minuta* Mayer, 1890 belonging to the family Caprellidae was collected from Jeju Island in Korea. This species has extensive habitats worldwide but it is the first record of the genus *Hemiaegina* from Korean waters. This monotypic species of the genus *Hemiaegina* has the following characteristics: gnathopod 1, propodus with a roundly swollen proximal projection; gnathopod 2, propodus with a bilobed triangular process; pereonite 2 with a pair of projections ventrally; and pereopod 7, propodus with a serrated palm. In this study, *H. minuta* is fully illustrated based on the mature specimens.

**Keywords:** Crustacea, Amphipoda, Caprellidae, *Hemiaegina*, Korea

### INTRODUCTION

The genus *Hemiaegina* Mayer, 1890 belongs to a very large group, the family Caprellidae Leach, 1814, but contains only one species, *Hemiaegina minuta* Mayer, 1890. This is a monotypic species with a wide global distribution (McCain, 1968; Müller, 1990; Guerra-García and Lowry, 2009; Guerra-García et al., 2010; Zeina and Guerra-García, 2016; Horton et al., 2021, see the details in the distribution section below). The genus *Hemiaegina* is characterized by having (1) a biarticulate flagellum in antenna 2; (2) pereopods 3 and 4 with uniaarticulate appendages at the base of the gills; and (3) an abdomen with a pair of biarticulate appendages. Three species of the genus *Hemiaegina* were previously reported (Mayer, 1890; Sundara Raj, 1927; Quitete, 1972), but the morphological differences between the three species were recognized as intraspecific variations, so they were synonymized (Serejo, 1997; Guerra-García et al., 2010). Thus, they were revised to a single species, *H. minuta* (Horton et al., 2021). Previous studies of this species have reported insufficient descriptions or illustrations, so we provide redescription of Korean *Hemiaegina minuta*, including illustrations of the appendages. This study is the first record of the genus *Hemiaegina* from Korean waters. Specimens were collected by SCUBA diving in

the subtidal waters of Jeju Island and were deposited into the National Institute of Biological Resources (NIBR) in Incheon, Korea and the Marine Amphipod Resources Bank of Korea (MARBK) in Cheonan, Korea.

### SYSTEMATIC ACCOUNTS

Order Amphipoda Latreille, 1816

Family Caprellidae Leach, 1814

<sup>1</sup>\*Genus *Hemiaegina* Mayer, 1890

<sup>2</sup>\**Hemiaegina minuta* Mayer, 1890 (Figs. 1–3)

*Hemiaegina minuta* Mayer, 1890: 40, Pl. 1, figs. 25, 27, Pl. 3, figs. 32–35, Pl. 5, figs. 52–53, Pl. 6, figs. 13, 33–34, Pl. 7, fig. 4; Steinberg and Dougherty, 1957: 281, figs. 8–11, 13, 29; McCain, 1968: 61, figs. 29–30; Utinomi, 1969: 297, fig. 2; Arimoto, 1976: 58, fig. 26; Serejo, 1997: 630, figs. 11–16; Guerra-García, 2003a: 105–106, fig. 10; 2003b: 6–7, fig. 3; 2004: 39, fig. 32; Díaz et al., 2005: 249, fig. 9; Krapp-Schickel and Guerra-García, 2005: 50, fig. 3; Guerra-García and Lowry, 2009: 295, fig. 3; Zeina and Abou Zaid, 2013: 228, figs. 5–6; Paz-Ríos et al., 2014: 2517, fig. 9; Zeina and Guerra-García, 2016: 233, fig. 3.

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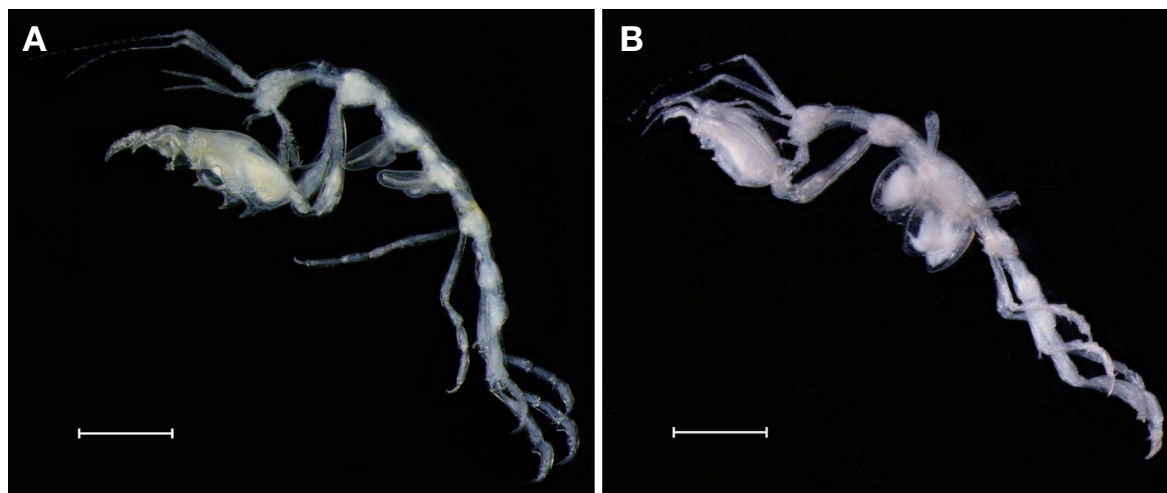
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**Fig. 1.** *Hemiaegina minuta* Mayer, 1890. A, Male, 4.5 mm; B, Female, 4.0 mm. Scale bars: A, B = 1.0 mm.

*Hemiaegina quadripunctata* Sundara Raj, 1927: 126, Pl. 18.  
*Hemiaegina costai* Quitete, 1972: 165, figs. 1–2.

**Material examined.** 7♂♂, 7♀♀, Korea: Jeju-do: Jeju-si, Gujwa-eup, Jongdal-ri, 33°28'57.41"N, 126°54'52.96"E, 5 Oct 2015, Park YC; 14♂♂, 17♀♀, 3 Nov 2015, Park YC; 1♂, Seogwipo-si, Seogwi-dong, Mun Island, 33°13'34.50"N, 126°34'11.10"E, 18 May 2017, Kim SH.

**Description. Male** (cat no. NIBRIV0000888148): Body (Figs. 1A, 2A) slender and smooth, 4.5 mm long. Head smooth without process. Eye small and round. Pereonite 1 fused with head, suture not present; pereonite 2 longest, with a pair of projections ventrally between gnathopod 2; pereonites 3–4 with small uniarticulate pereopods and oval to elliptical gills; pereopod 5 subequal to pereopod 6; pereopod 7 shortest; length ratio of pereonites 2–7 = 1.00 : 0.88 : 0.75 : 0.80 : 0.80 : 0.37.

Antenna 1 (Fig. 2B) slender, 0.63 × body length; peduncular article 1–3 unarmed; peduncular article 3 short; length ratio of peduncular articles 1–3 = 1.00 : 2.64 : 0.54; flagellum 11-articulate, 1.58 × peduncle, each article with 1 aesthetasc ventrodistally.

Antenna 2 (Fig. 2C) much shorter than antenna 1, exceeding the distal end of peduncular article 3; length ratio of peduncular articles 3–5 = 1.00 : 3.53 : 3.65; flagellum biarticulate, swimming setae absent; 0.20 × peduncular articles 3–5.

Gnathopod 1 (Fig. 2D) small; propodus elongate-ovate, palm nearly straight with unequal simple setae and grasping spine on medial surface of semicircular proximal lobe; dactylus falcate, fitting palm; length ratio of 6 articles = 1.00 : 0.23 : 0.42 : 0.42 : 0.89 : 0.76.

Gnathopod 2 (Fig. 2E) attached to midposterior portion of pereonite 2; basis elongate, subequal to propodus, widen-

ing distally; propodus massive, width 0.55 × length, with a small grasping spine on proximal projection, palm irregular and mesial margin concave, with a poison tooth mesially and a large bilobed process distally; dactylus falcate, inner margin serrated; length ratio of 6 articles = 1.00 : 0.07 : 0.25 : 0.17 : 1.07 : 0.56.

Pereopod 3 (Fig. 2F) very small, rudimentary, 0.1 × gill, uniarticulate, oval shape with a setule.

Pereopod 4 (Fig. 2G) similar to pereopod 3.

Pereopod 5 (Fig. 3A) long and normal; palm of propodus concave with small setae, defined by a grasping spine with accompanied slender seta; length ratio of 6 articles = 1.00 : 0.12 : 0.59 : 0.50 : 0.57 : 0.46.

Pereopod 6 (Fig. 3B) similar to pereopod 5, but palm of propodus more concave than that of pereopod 5; length ratio of 6 articles = 1.00 : 0.16 : 0.61 : 0.43 : 0.55 : 0.48.

Pereopod 7 (Fig. 3C), propodus broad and peculiar, palm greatly concave, with a large proximal projection by a lined several teeth, grasping spine absent; length ratio of 6 articles = 1.00 : 0.20 : 0.67 : 0.50 : 0.61 : 0.51.

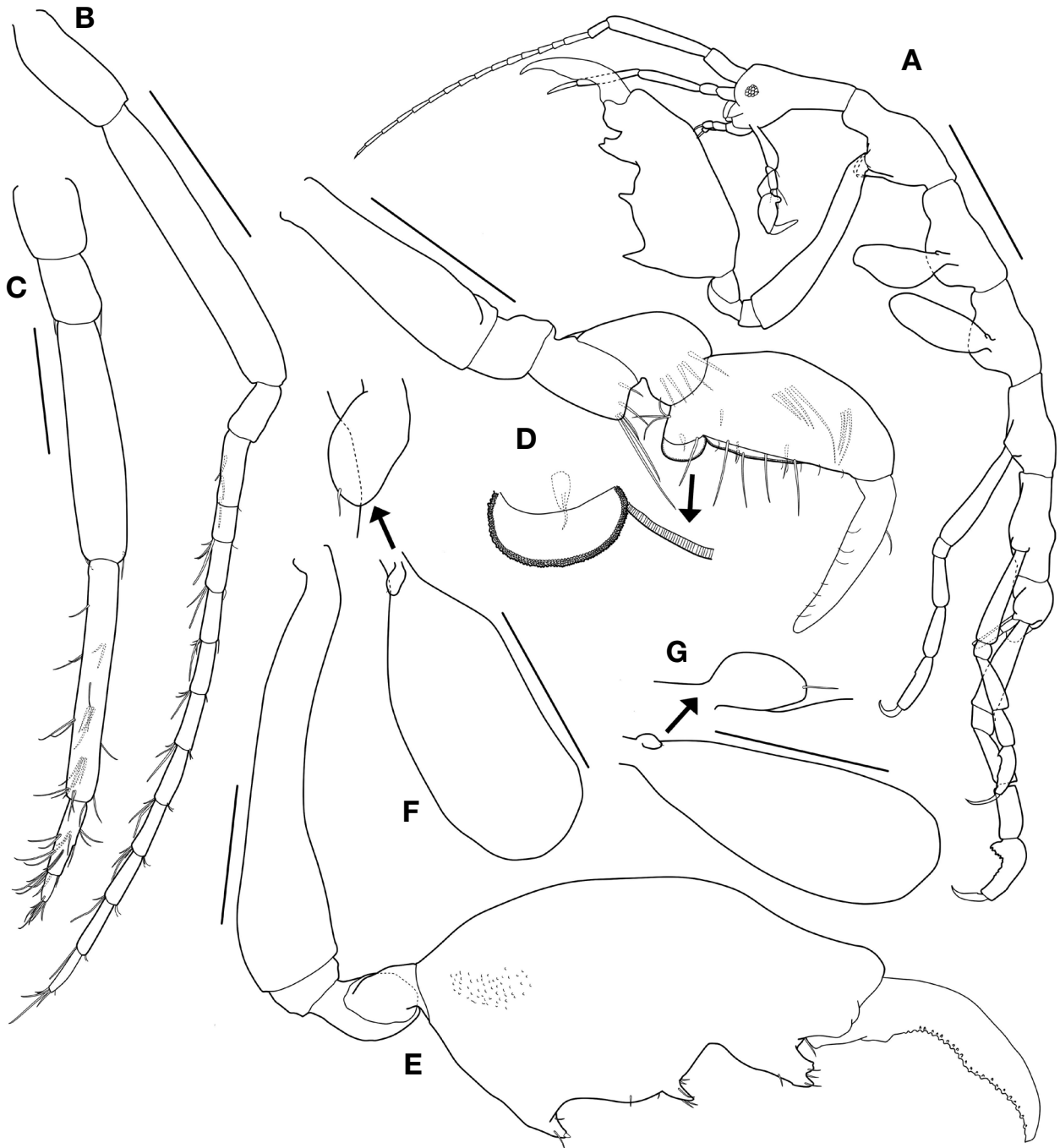
Abdomen (Fig. 3D) with a pair of biarticulate appendages, dorsal lobe bilobed.

**Female** (cat no. NIBRIV0000888149): Body (Figs. 1B, 3E) 4.0 mm long, generally as in male including abdominal appendages, but pereonites 3–4 with rounded brood pouches.

Antenna 1 (Fig. 3F) slender, 0.48 × body; length ratio of peduncular articles 1–3 = 1.00 : 3.07 : 0.59; flagellum 13-articulate, 1.39 × peduncle, each article with 1 aesthetasc ventrodistally.

Antenna 2 (Fig. 3G) much shorter than antenna 1; length ratio of peduncular articles 3–5 = 1.00 : 3.75 : 4.00; flagellum biarticulate, 0.20 × peduncular articles 3–5.

Gnathopod 1 (Fig. 3H) very similar to that of male.

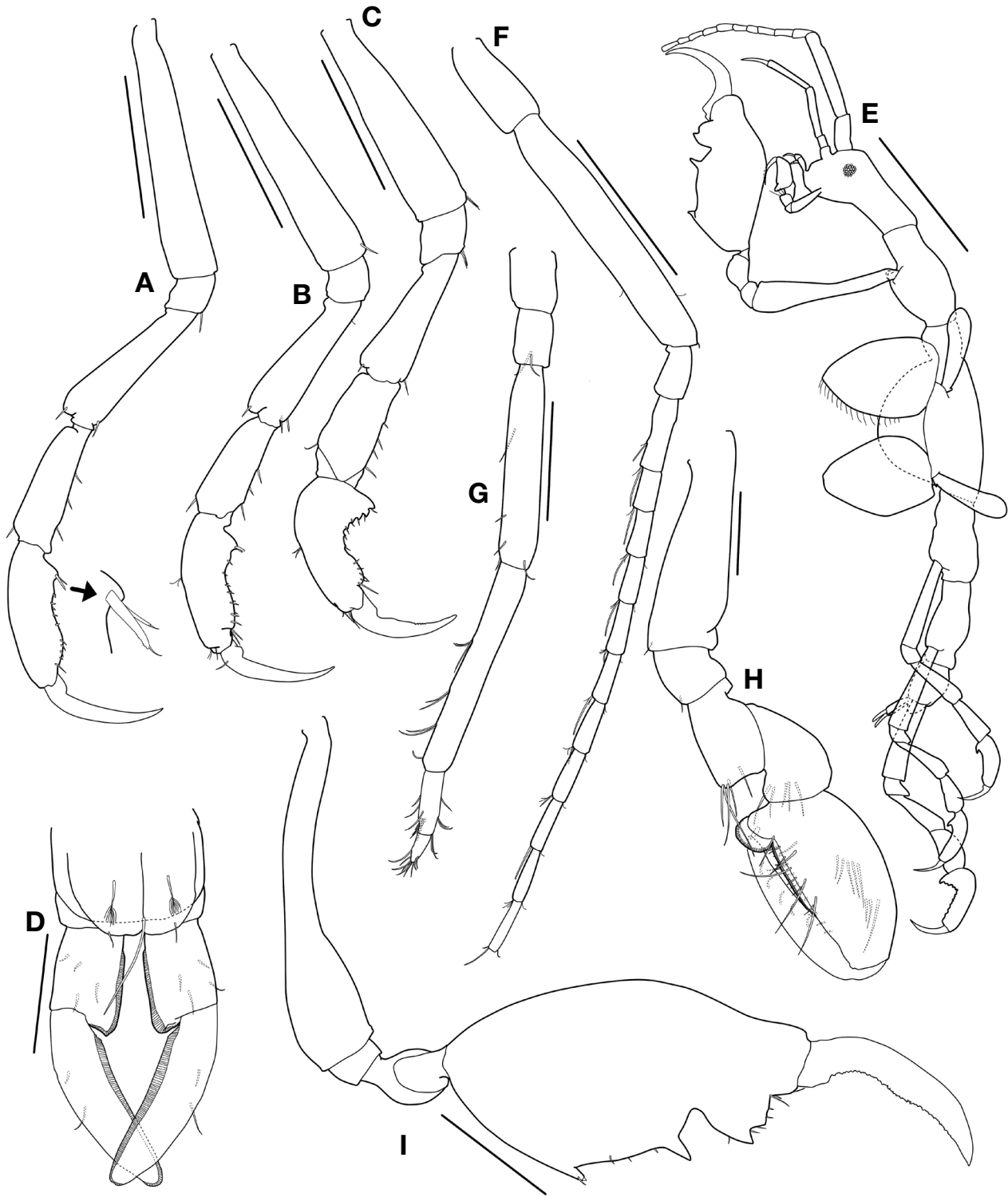


**Fig. 2.** *Hemiaegina minuta* Mayer, 1890. Male, 4.5 mm. A, Habitus; B, Antenna 1; C, Antenna 2; D, Gnathopod 1; E, Gnathopod 2; F, Gill and Pereopod 3; G, Gill and Pereopod 4. Scale bars: A=1.0 mm, B, E-G=0.4 mm, C, D=0.2 mm.

Gnathopod 2 (Fig. 3I) similar to that of male, but distal bilobed process on palm of propodus blunt than that of male.

**Remarks.** The genus *Hemiaegina* Mayer, 1890 is similar to the genera *Protella* Dana, 1852 and *Monoliropus* Mayer, 1903 recorded in Korean waters, having uniaarticulate pereopods 3-4. However, *Hemiaegina* is easily distinguished from those

two genera by its lack of a mandibular palp (Dana, 1853; Mayer, 1890, 1903; McCain, 1968; Quitete, 1972). Although this species is widely distributed from temperate to tropical waters, it shows very little intraspecific variation among the localities (Zeina and Guerra-García, 2016). The newly recorded species is consistent with the original description by May-



**Fig. 3.** *Hemiaegina minuta* Mayer, 1890. A, Pereopod 5; B, Pereopod 6; C, Pereopod 7; D, Abdomen. Female, 4.0 mm; E, Habitus; F, Antenna 1; G, Antenna 2; H, Gnathopod 1; I, Gnathopod 2. Scale bars: A-C, F, I=0.4 mm, D, H=0.1 mm, E=1 mm, G=0.2 mm.

er (1890) with the following characteristics: (1) gnathopod 1, propodus with a roundly swollen proximal projection; (2)

gnathopod 2, palm of the propodus with bilobed triangular process; (3) pereonite 2 with a pair of projections between the

bases of gnathopod 2; and (4) pereopod 7, propodus with a serrated palm.

**Habitat.** This species has been found on many different substrates on the Great Barrier Reef: green, brown, and red algae, sponges, tunicates, seagrass, dead corals encrusted with algal turf, and under small boulders, but at Lizard Island the species has been only found on hydroids (Guerra-García, 2006).

**Type locality.** Off Amoy, China (Mayer, 1890).

**Distribution.** Red Sea, West coast of United States, Venezuela, Colombia, Gulf of Mexico, South Africa, Hawaii, Bora Bora, Japan, Papua New Guinea, Australia, India, Mauritius, South Arabian coast, Indonesia, Korea (for details of the localities see McCain, 1968, McCain and Steinberg, 1970; Guerra-García, 2003a, 2003b, 2004, 2006; Díaz et al., 2005; Krapp-Schickel and Guerra-García, 2005; Guerra-García et al., 2006; Zeina and Abou Zaid, 2013; Paz-Ríos et al., 2014; Zeina and Guerra-García, 2016).

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## CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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