

First Records of Two Species of Crabs (Crustacea: Decapoda: Brachyura) Collected from Southern Korea

Seok Hyun Lee, Hyun Sook Ko*

Department of Biological Sciences, Silla University, Busan 617-736, Korea

ABSTRACT

Two species of crabs, *Homola orientalis* Henderson, 1888 and *Pseudomicippe nipponica* (Sakai, 1938), are described and illustrated for the first time in Korea. *Homola orientalis* was collected at 30 m depth by trap from Busan, and *P. nipponica* was collected on the intertidal region in Seongsanpo, Jeju Island. *Homola orientalis* is the first species of its family in the region. The family Homolidae is characterized by a linea homolica on the carapace and they carry camouflage in the form of sponges or cnidarians with subchelate of the fourth ambulatory legs. The Korean brachyuran fauna now comprises 223 species including the new records from this study.

Keywords: Brachyura, Homolidae, *Homola orientalis*, *Pseudomicippe nipponica*, Korea

INTRODUCTION

Kim and Kim (1997) reported 187 species of brachyuran crabs in Korea. Later, 34 species of brachyuran crabs have been added, thus, there are 221 brachyuran species in Korea.

During a continuous taxonomic study on crabs, two species of crabs were collected from southern Korea, and they were revealed as *Homola orientalis* Henderson, 1888 and *Pseudomicippe nipponica* (Sakai, 1938). The former was collected at 30 m depth by trap from Gilcheon, Busan and the latter was collected in the intertidal region from Seongsanpo, Jeju Island. The former is the first species of the family Homolidae De Haan, 1839 from Korean waters. The present study describes and illustrates these two species of crabs with color photographs of living crabs. Now, Korean brachyuran crabs consist of 223 species.

MATERIALS AND METHODS

The materials examined in this study were preserved in 95% ethanol and deposited at the corresponding author's collection at Silla University, Busan. They were observed under an

MZ8 stereomicroscope (Leica, Wetzlar, Germany). Drawings were made with the aid of a camera lucida. Color images were taken with digital camera (Nikon Imaging, Seoul, Korea).

The abbreviations "cl" and "cw" refers to carapace length from the tip of the frontal margin to the posterior dorsal margin of the carapace and to the width of the carapace measured at the widest part, respectively. The classification follows that of Ng et al. (2008).

SYSTEMATIC ACCOUNTS

Order Decapoda Latreille, 1802

Superfamily Homoloidea De Haan, 1839

¹*Family Homolidae De Haan, 1839

²*Genus *Homola* Leach, 1815

³**Homola orientalis* Henderson, 1888 (Figs. 1, 2)

Homola orientalis Henderson, 1888: 19, Pl. 2, fig. 1; Sakai, 1936: 35, Pl. 4, figs. 5, 6; 1976: 39, Pl. 8, fig. 4; Serène and Lohavanijaya, 1973: 25, Pl. 3, figs. 19–22; Miyake, 1983: 13, Pl. 5, fig. 1; Dai and Yang, 1991: 37, fig. 14; Guinot and De Forges, 1995: 331, figs. 9e, 10A–C, 12A,

Korean name: ¹*긴눈자루게과, ²*긴눈자루게속, ³*긴눈자루게

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*To whom correspondence should be addressed

Tel: 82-51-999-5473, Fax: 82-51-999-5176

E-mail: hsko@silla.ac.kr



Fig. 1. *Homola orientalis* Henderson, 1888, male (CL 25 mm, CW 19 mm). CL, carapace length from the tip of the frontal margin to the posterior dorsal margin of the carapace; CW, the width of the carapace measured at the widest part.

B, 13h, 16c–f, 77a; De Forges and Ng, 2007: 30, fig. 1A; Chan et al., 2009: 79, figs. 49, 50.

Homola barbata orientalis: Yokoya, 1933: 99.

Thelxiope orientalis: Sakai, 1965: 15, Pl. 16, fig. 4.

Material examined. 1 ♂ (cl 25 mm, cw 19 mm), 1 ♀ (cl 22 mm, cw 15 mm), Korea: Busan, 12 Dec 2009, Lee SH, trap at 30 m depth.

Description. Carapace (Figs. 1, 2A) subquadrate, about 1.4 times longer than broad, dorsal surface covered with short setae; regions not distinct; linea homolica present. Eye-stalk long, cyclindrical. Rostrum distinctly bifid; pseudorostral spines present. Gastric region slightly convexed, with 9 spines. Anterolateral margins with spines. Posterolateral margins with spines reduced in size posteriorly. Antennal flagellum as long as cl.

Third maxilliped (Fig. 2B). Ischium subrectangular, 3 times longer than broad, inner margin with setae and spines; merus with setae on inner and outer margins, antero-inner margin with spine; dactylus setose. Exopod with setae on outer margin, red spot on proximal half; flagellum with plumose setae.

Chelipeds (Fig. 2C, D) symmetrical, long, robust, covered with short setae; each merus with spines on anterior and pos-

terior margins; each palm convexed, with minute granules on lower surface; fingers long, curved; movable finger with triangular tooth proximally.

Ambulatory legs (Fig. 2E–H) long, robust, flattened, covered with short setae; fourth leg short, with dactylus and propodus subchelate, modified for carrying objects; meri of first to third legs with spines on anterior and posterior margins; propodi of first to third legs with spines on posterior margins; dactyli with spines on posterior margins, with curved tip. Merus of fourth leg with strong spines on posterior margin, with distal spine on anterior margin; carpus with spines on both margins; propodus with spines on proximal half of lower margin; dactylus short, curved, with spines on posterior margin.

Male abdomen (Fig. 2I) elongated, 6-segmented, covered with short setae dorsally; second segment with acuminate tubercle. Telson triangular, concaved laterally.

First gonopod (Fig. 2J) long, robust, twisted, not tapering, with truncated end, with plumose setae in proximal part, with setae in distal half. Second gonopod (Fig. 2K) as long as first gonopod, segmented 1/3 of proximal part, produced medially, with blunt end.

Color of in life. Generally red-orange, palms of chelipeds

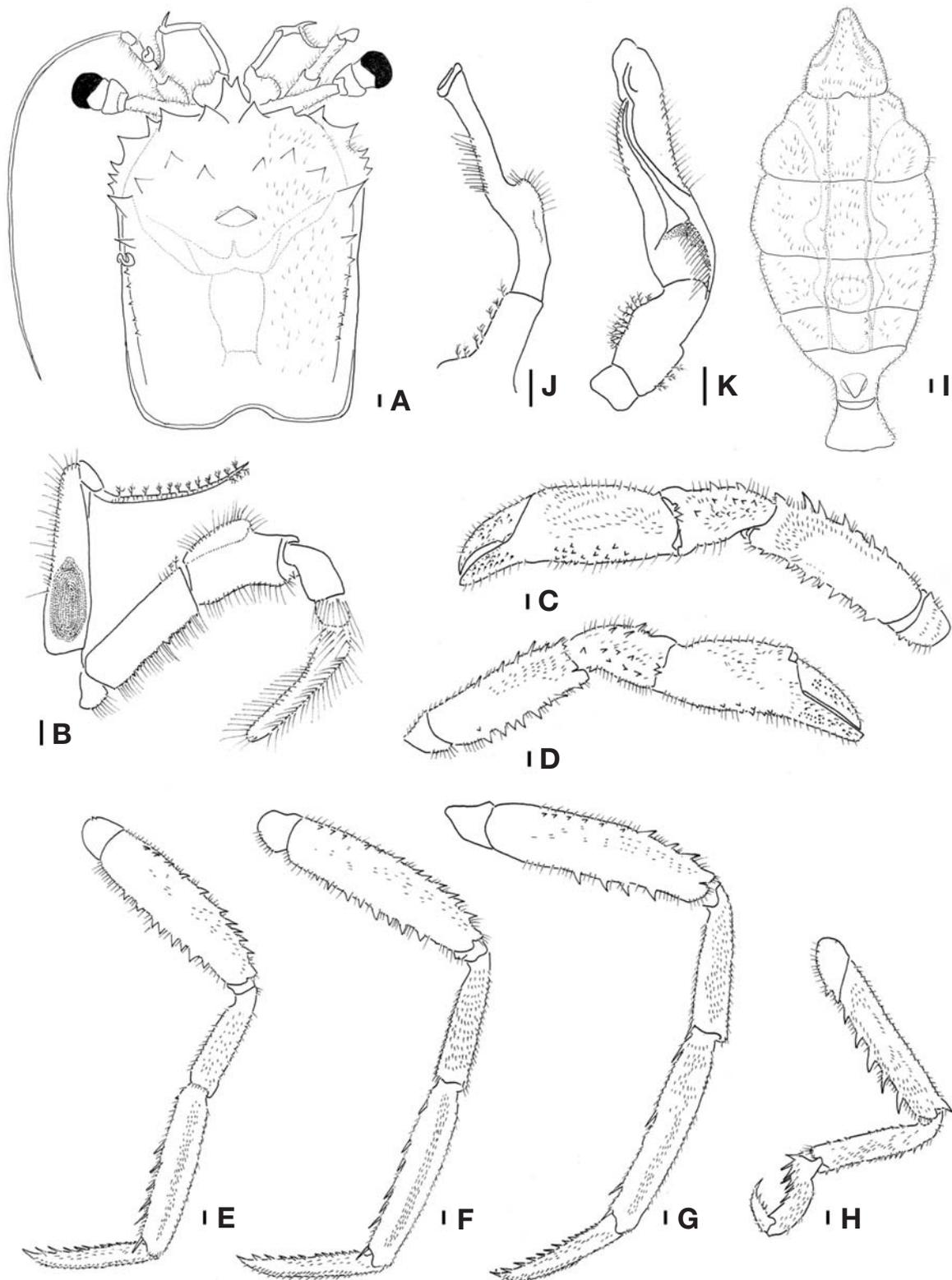


Fig. 2. *Homola orientalis*, male (CL 25 mm, CW 19 mm). A, Dorsal view of carapace; B, Ventral view of left third maxilliped; C, D, Ventral views of chelipeds; E-H, First to fourth ambulatory legs; I, Male abdomen; J, First gonopod; K, Second gonopod. CL, carapace length from the tip of the frontal margin to the posterior dorsal margin of the carapace; CW, the width of the carapace measured at the widest part. Scale bars: A-K=1 mm.



Fig. 3. *Pseudomicippe nipponica* (Sakai, 1938), female (CL 28 mm, CW 21 mm). CL, carapace length from the tip of the frontal margin to the posterior dorsal margin of the carapace; CW, the width of the carapace measured at the widest part.

whitish, fingers red.

Habitat. Soft substrates, at 30 m depth.

Distribution. Indian Ocean to Hawaii (Chan et al., 2009) and now Korea.

Remarks. Homolid crabs are usually referred to as ‘deep-water crabs’ and their fourth ambulatory leg forms a subchelate to carry sponges or cnidarians for camouflage (Guinot and De Forges, 1995). The genus *Homola* includes 11 species in the world (Ng et al., 2008) and is distinguished from other genera in the family Homolidae by having a carapace with a linea homolica (Chan et al., 2009). Our specimens were almost identical to a description by Henderson (1888), but a difference was found in palms of the chelipeds. Based on his description, they are unarmed, whereas in our specimens have minute granules on the lower surfaces of the chelipeds. This species is the first homolid crab reported in Korea.

Superfamily Majoidea Samouelle, 1819

Family Majidae Samouelle, 1819

Subfamily Majinae Samouelle, 1819

Genus *Pseudomicippe* Heller, 1861

¹**Pseudomicippe nipponica* (Sakai, 1938) (Figs. 3, 4)

Pseudomicippe tenuipes Balss, 1924: 35, Pl. 1, fig. 6 (not *P. tenuipes* A. Milne Edwards, 1865); Sakai, 1934: 298.

Zewa nipponica Sakai, 1938: 244, Pl. 25, figs. 1, 22a–d; 1965: 71, Pl. 31, fig. 3; 1976: 188, figs. 99, 100a.

Pseudomicippe nipponica: Griffin and Tranter, 1986: 234, fig. 87b.

Material examined. 1 ovig. ♀ (cl 28 mm, cw 21 mm), Korea: Jeju Island, 24 Jul 2010, Lee KH.

Description. Carapace (Figs. 3, 4A, B) elongated pyriform, covered with curled setae, regions distinct; gastric region heavily convex. Pseudorostral spines well divergent, deflexed downward. With 5 tubercles on middle line. Anterolateral and posterolateral margins with tubercles. Protogastric and cardiac regions each with 4 tubercles forming quadrangle; intestinal region with 3 tubercles (1 large, 2 smaller). Supra-orbital eave concaved, with acuminate tooth on posterior margin; intercalated spine absent, postorbital spine with broad

Korean name: ¹*제주어리누덕옷게

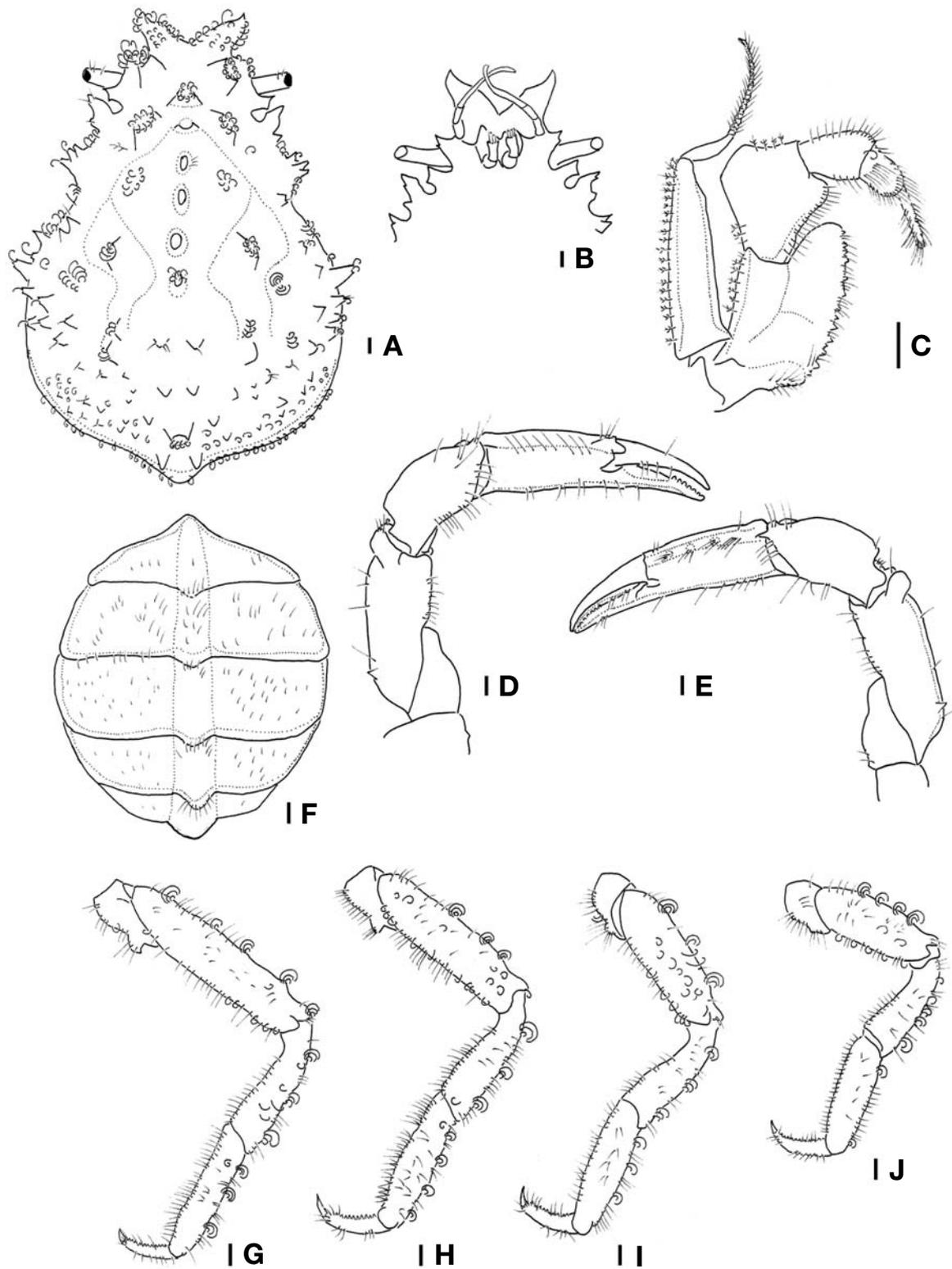


Fig. 4. *Pseudomicippe nipponica*, female (cl 28 mm, cw 21 mm). A, Dorsal view of carapace; B, Ventral view of carapace; C, Ventral view of left third maxilliped; D, E, Dorsal views of chelipeds; F, Female abdomen; G–J, First to fourth ambulatory legs. cl, carapace length from the tip of the frontal margin to the posterior dorsal margin of the carapace; cw, the width of the carapace measured at the widest part. Scale bars: A–J=1 mm.

den and acuminate tip. Eye-stalk extremely slender, thin. Basal antennal article with prominent tooth on antero-external angle.

Third maxilliped (Fig. 4C). Ischium subrectangular, about 1.3 times longer than broad; inner margin with setae and spines, outer margin with pulvose setae; antero-inner margin produced; merus with setae on inner margin; dactylus setose. Outer margin of exopod with pulvose setae.

Chelipeds (Fig. 4D, E) symmetrical, slender; each merus with tubercle on proximally; propodus slender, narrowed distally, with scattered setae on surface; fingers long, slightly curved, denticulated on cutting margins.

Ambulatory legs (Fig. 4G–J) relatively long, covered with long setae and curled setae; first leg the longest; each ischium with tubercle distally; each dactylus spinulated on posterior margin, with pointed end.

Female abdomen (Fig. 4F) broaden, 6-segmented, covered with short setae dorsally, convex medially. Telson triangular, broader than long.

Color of in life. Generally brown, fingers of chelipeds pinkish red, dactyli of ambulatory legs dark brown.

Habitat. Under brown seaweeds in intertidal region.

Distribution. Japan (Griffin and Tranter, 1986) and now Korea.

Remarks. Until now, *Pseudomicippe okamotoi* (Sakai, 1938) was the only recorded *Pseudomicippe* species in Korea (Kim and Kim, 1997), and *P. nipponica* could be the second species in the genus. They are similar to each other by having elongated pyriform carapace and covered with curled setae, however, they can be distinguished by their pseudorostral spines and chelipeds. The former has slightly deflexed pseudorostral spines and slender chelipeds, whereas the latter has strongly deflexed pseudorostral spines and stout chelipeds. Our specimen is almost identical to the description of Sakai (1938). However, a minute difference is found in each merus of the chelipeds. According to his description, the merus of cheliped has three tubercles on the upper surface, whereas, in our specimen has a tubercle.

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