

First Record of the Genus *Aora* (Crustacea, Amphipoda, Aoridae) from Korea, with Description of Newly Recorded Species, *Aora pseudotypica*

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ABSTRACT

A newly recorded species, *Aora pseudotypica* Hirayama, 1984, belonging to the family Aoridae Stebbing, 1899 was collected from Geomundo and Jeju-do Islands in South Korea. This species is characterized by having large triangular process on basis of male gnathopod 1. It is morphologically similar to *A. typica* Krøyer, 1845, but distinguishable by the lack of a large rounded process on the anterior margins of basis and ischium on male gnathopod 1 and having small distal segment on outer ramus of uropod 3. To date, only two genera, *Aoroides* Walker, 1898 and *Grandidierella* Coutière, 1904, of the family Aoridae have been recorded in Korea, so this is the first record of the genus *Aora* from Korea.

Keywords: Amphipod, Aoridae, *Aora*, Korea, new record, taxonomy

INTRODUCTION

The family Aoridae Stebbing, 1899 was separated from Corophiidae by Myers and Lowry (2003) and became independent family. The family Aoridae includes 244 species in 26 genera (Horton et al., 2024). Among these 26 genera, *Aora* is a genus comprising 21 species, first established by Krøyer (1845) and characterized by having (1) antenna 1, accessory flagellum long, and composed of three or more articles; (2) gnathopod 1, merus produced into a long tooth; and (3) uropod 3 biramus (Barnard, 1962). Currently three genera and six species of Aoridae are recorded in Korea: *Aoroides columbiae* Walker, 1898, *A. ellipticus* Ariyama, 2004, *A. semicurvatus* Ariyama, 2004, *Grandidierella fasciata* Ariyama, 1996, *G. japonica* Stephensen, 1938, and *Paragrandidierella minima* Ariyama, 2002 (Kim and Kim, 1987; Kim, 2011; Jung and Yoon, 2013; Jung et al., 2016; Kim and Heo, 2016). Although the genus *Aora* Krøyer, 1845 has not yet been recorded in Korea, during a survey in Geomundo and Jeju-do Islands, *Aora pseudotypica* Hirayama, 1984 was collected (Fig. 1). This paper presents the first record of the genus *Aora* from Korea. Specimens were

collected by SCUBA diving and hand net from the subtidal waters of Geomundo and Jeju-do Islands and were deposited into the National Institute of Biological Resources (NIBR) in Incheon, Korea and the Department of Biological Science, Dankook University (DKU) in Cheonan, Korea.

SYSTEMATIC ACCOUNTS

Order Amphipoda Latreille, 1816
Superfamily Aoroidea Stebbing, 1899
Family Aoridae Stebbing, 1899
¹*Genus *Aora* Krøyer, 1845

²**Aora pseudotypica* Hirayama, 1984 (Figs. 2–4)
Aora pseudotypica Hirayama 1984: 86, figs. 98–100; Ishimaru, 1990, 212; Ariyama, 2006: 2, figs. 1–5.

Material examined. Korea: 1 ♂, Jeollanam-do: Yeosu-si, Samsan-myeon, Geomun-do Island, 34°02'45"N, 127°18'43"E, 14 May 2014, Kim YH; 1 ♂, Jeju-do: Jeju-si, Udo-myeon, Cheon-jin port, 33°29'29"N, 126°57'02"E, 20 Jul

Korean name: ¹*큰앞손옆새우속 (신칭), ²*길쪽큰앞손옆새우 (신칭)

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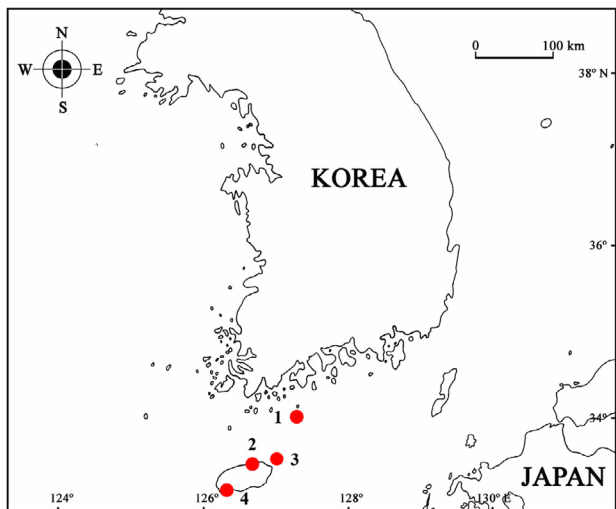


Fig. 1. Distribution of the *Aora pseudotypica* (●: 1, Geomun-do Island; 2, Jochen seawall; 3, Cheon-jin port; 4, Kangjeong-dong).

2014, Kim YH; 7♂♂, Jeollanam-do: Yeosu-si, Samsan-myeon, Geomun-do Island, 34°01'23"N, 127°17'23"E, 19 Jul 2019, Kim YH; 2♂♂, Jeju-do: Jeju-si, Jocheon-eup, Jochen seawall, 33°32'31"N, 126°38'02"E, 5 Feb 2022, Kim YH; 2♂♂, Seogwipo-si, Kangjeong-dong, 33°14'15"N, 126°27'00"E, 13 May 2023, Kim YH.

Diagnosis. Eyes black, oval. Antenna 1 slender, elongated; accessory flagellum 4-articulate. Antenna 2 slender. Gnathopod 1 merochelate, elongate, much longer than gnathopod 2; basis with a large triangular process; propodus palmar corner somewhat produced. Gnathopod 2 short, subchelate. Uropod 1 with 1 large inter-ramal process. Uropod 3, outer ramus biarticulate. Telson short and fleshy, truncate distally.

Description. Adult male (cat No. NIBRIV0000837770): Body (Figs. 2, 3A) laterally compressed, dorsally smooth, 7.9 mm long; anterior cephalic lobe produced; eyes black, oval.

Antenna 1 (Fig. 3B) slender, elongated; length ratio of peduncular articles 1-3 = 1.00 : 1.43 : 0.21; peduncular article 3 posterior margin with 2 robust setae; flagellum 33-articulate, 5.35 × peduncular article 3, each article with 2-4 setae; accessory flagellum 4-articulate, with 4 setae distally (drawn from 7.2 mm male).

Antenna 2 (Fig. 3C) slender, elongate; peduncular articles 1-3 shorter than peduncular article 1 of antenna 1; gland cone pointed, extending to half of peduncular article 3; peduncular articles 4 and 5 subrectangular, setose ventrally; length ratio of peduncular articles 3-5 = 1.00 : 4.07 : 4.00; flagellum 8-articulate, subequal to peduncular article 5.

Gnathopod 1 (Fig. 3D) elongate, slender, merochelate,



Fig. 2. *Aora pseudotypica* Hirayama, 1984, adult male, 7.9 mm, habitus. Scale bar = 1.0 mm.

much longer than gnathopod 2; coxa subtriangular, anterodistal corner acute; basis subrectangular, with 1 large triangular process anteriorly; merus located below carpus, elongated, apex acute, length subequal to basis; carpus subrectangular, posterior margin with 13 setae; propodus subrectangular, slightly concave ventrally, 0.65 × carpus, posterior margin setose; palm short, palmar corner somewhat produced posterodistally; dactylus falcate, 0.66 × carpus.

Gnathopod 2 (Fig. 3E) short, subchelate; coxa subquadrate, width 1.33 × length; basis subrectangular, width 0.30 × length, slightly curved posteriorly, anterior margin with 7 robust setae, posterior margin with 7 setae and 3 robust setae; merus subrectangular, posterior margin with 8 setae, 2.22 × ischium; carpus subrectangular, widening distally, anterior margin with 4 setae, posterior margin setose, length 2.12 × merus; propodus subrectangular, 0.76 × carpus, anterior margin with 6 setae, posterior margin setose; palm oblique; dactylus falcate, slightly overreaching palm, length 0.66 × propodus, inner margin with a row of 6 setules.

Pereopod 3 (Fig. 3F), coxa subquadrate, width 1.25 × length, ventral margin with 5 setae; basis subrectangular, anterior margin with 7 robust setae, posterior margin with several unequal setae; ischium short, length 0.21 × basis; merus subrectangular, 2.33 × ischium, with 2 setae on each margin and distal corner; carpus subrectangular, 1.29 × merus, posterior margin setose; propodus slender, 0.56 × carpus, anterior margin with 3 setae, posterior margin setose; dactylus falcate, 0.60 × propodus.

Pereopod 4 (Fig. 3G) similar to pereopod 3, but merus with 3 robust setae on anterior margin.

Pereopod 5 (Fig. 4A), basis subrectangular, length 2.19 × width, anterior margin with a row of 6 robust setae, posterodistal corner slightly concave; merus widening distally, 2.23 ×

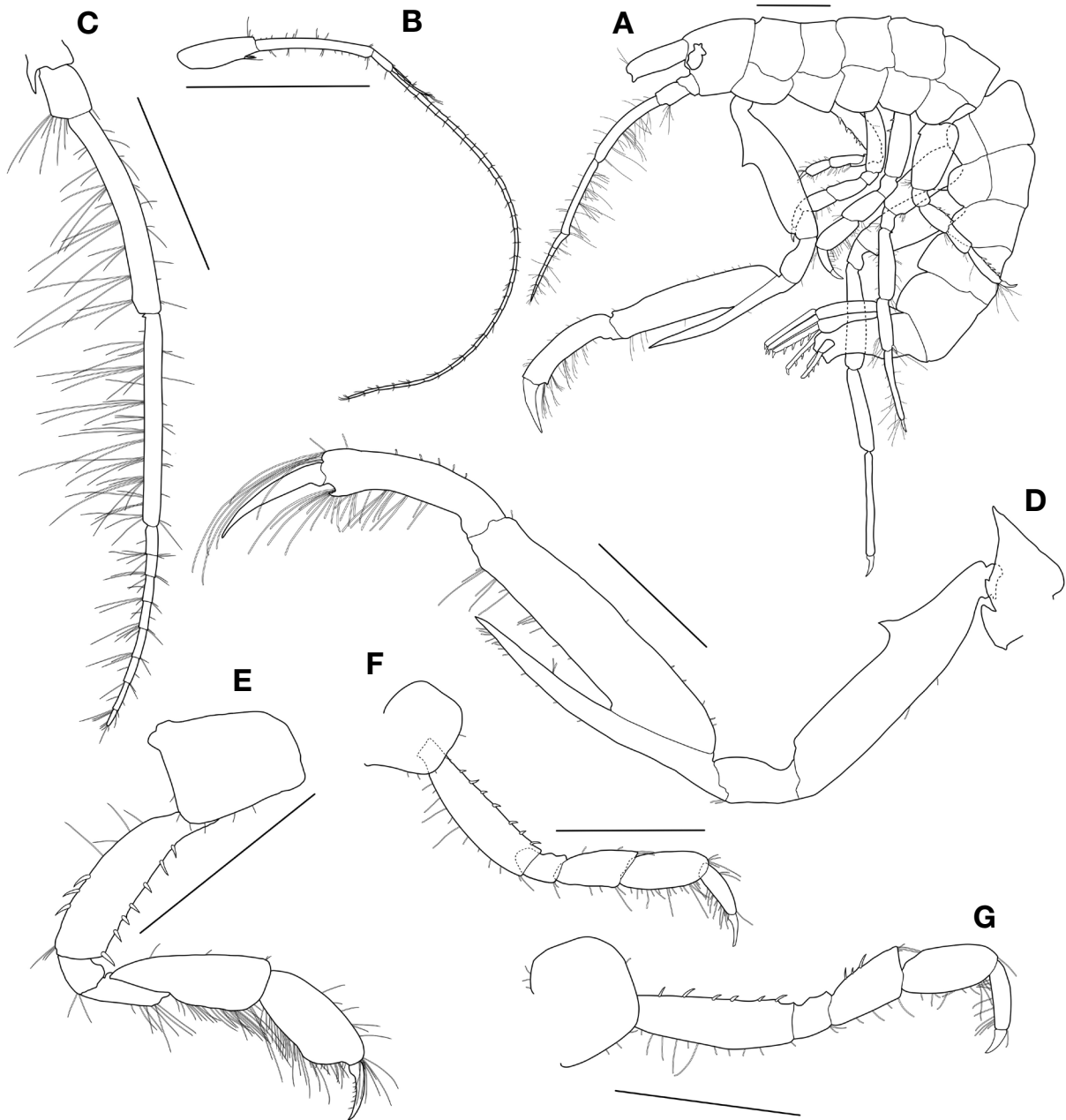


Fig. 3. *Aora pseudotypica* Hirayama, 1984, adult male, 7.9 mm: A, Habitus; C, Antenna 2; D, Gnathopod 1; E, Gnathopod 2; F, Pereopod 3; G, Pereopod 4; male, 7.2 mm: B, Antenna 1. Scale bars: A-G=1.0 mm.

ischium, anterior margin with 7 setae, posterior margin with 3 robust setae; carpus $0.80 \times$ merus; propodus slender, $1.57 \times$ carpus, anterior margin with 3 setae, posterior margin with a row of 7 robust setae; dactylus falcate, $0.29 \times$ propodus.

Pereopod 6 (Fig. 4B), coxa bilobate, with 1 robust seta posteroventrally; basis longish elliptical, length $2.36 \times$ width, anterior margin with a row of 7 robust setae; merus subrect-

angular, length $0.81 \times$ basis; carpus rectangular, $0.81 \times$ merus, anterior margin setose, posterior margin with 7 robust setae; propodus slender, $1.33 \times$ carpus; dactylus falcate, $0.35 \times$ propodus.

Pereopod 7 (Fig. 4C) similar to pereopod 6, but more elongated; coxa rounded.

Uropod 1 (Fig. 4D), peduncle subrectangular, $0.91 \times$ in-

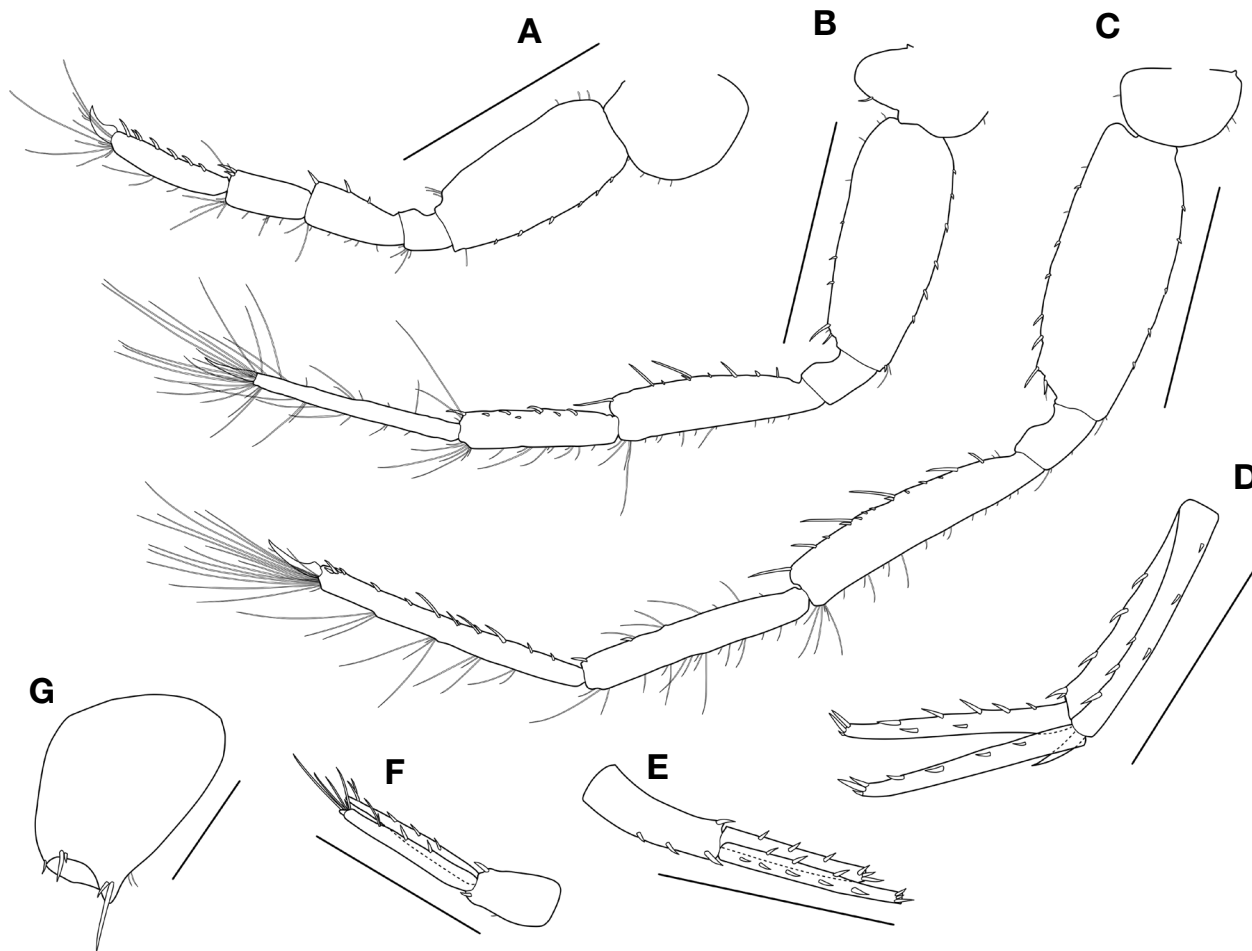


Fig. 4. *Aora pseudotypica* Hirayama, 1984, adult male, 7.9 mm. A, Pereopod 5; B, Pereopod 6; C, Pereopod 7; D, Uropod 1; E, Uropod 2; F, Uropod 3; G, Telson. Scale bars: A–C=1.0 mm, D, E=0.8 mm, F=0.5 mm, G=0.2 mm.

ner ramus, with 3 dorsolateral, 4 dorsomedial, 3 basofacial robust setae and 1 large inter-ramal process; both rami subequal in length.

Uropod 2 (Fig. 4E), peduncle subrectangular, subequal in length to inner ramus, with 3 dorsolateral and 1 apicomedial robust setae; inner ramus $0.76 \times$ outer ramus.

Uropod 3 (Fig. 4F), peduncle short, $0.55 \times$ inner ramus, with 1 laterodistal and 1 mediodistal robust setae; outer ramus subequal to inner ramus in length, biarticulate, distal segment minute.

Telson (Fig. 4G) short, fleshy, truncate distally, both distal ends with 2 unequal setae.

Remarks. *Aora pseudotypica* is similar to *A. typica* by the following characteristics: (1) anterior margin of basis on gnathopod 1 with a triangular process and (2) merus and propodus of gnathopod 1 shorter than carpus (Ariyama, 2006). However, *A. pseudotypica* is distinguishable by lacking large rounded process on anterior margins on basis and

ischium of gnathopod 1 and having small distal segment on outer ramus of uropod 3 (Hirayama, 1984; Ariyama, 2006). *Aora pseudotypica* is also similar to *A. aoriformis* in having a triangular process on anterior margin of basis in gnathopod 1 (Ariyama, 2006). However, it can be distinguishable by lacking a robust seta on posterior margin of propodus in gnathopod 1 and by the presence of slender and elongated carpus and propodus in gnathopod 1. The newly recorded species in Korea, *A. pseudotypica* is well accorded with the original description of Hirayama (1984).

Distribution. Japan (Ehime, Hiroshima, Ishikawa, Osaka, Wakayama), Korea (Geomundo and Jeju Islands).

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CONFLICTS OF INTEREST

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

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