

First Record of the Bothid Flounder, *Asterorhombus intermedius* (Bothidae, Pleuronectiformes) from Korea

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ABSTRACT Two specimens of *Asterorhombus intermedius* (130.0 ~ 143.4 mm SL), belonging to the family Bothidae, were firstly collected from the coastal waters of Jeju Island, Korea. This species was characterized by having 54 ~ 56 lateral line scales, first dorsal-fin ray with a long projection, and various size of black spots on the body. The morphological characteristics matched well with previous description of *A. intermedius*. Therefore, we add this species to the Korean fish fauna and propose its Korean name, "Git-teol-dung-geul-neob-chi-sok" and "Git-teol-dung-geul-neob-chi" for the genus and species, respectively.

Key words : Bothidae, *Asterorhombus intermedius*, first record, Jeju Island, Korea

INTRODUCTION

There are about 22 genera and 140 species of bothid flounder (family Bothidae) in the world (Nelson, 2006). This family is morphologically characterized by having pelvic fin base on ocular side longer than on blind side (Amaoka, 1969; Nelson, 2006). The genus *Asterorhombus*, belonging to family Bothidae, is widely distributed on the sea bottom in shallow to deep waters of the Indo-West Pacific and is morphologically characterized by having first dorsal-fin ray usually longer than second and unattached from remainder of fin (Amaoka, 1969). It comprised four known species being reported worldwide, which include *Asterorhombus cocosensis* (Bleeker, 1855), *A. fijiensis* (Norman, 1931), *A. intermedius* (Bleeker, 1866), and *A. filifer* Hensley and Randall, 2003. But Hensley (2005) suggested that *A. fijiensis* was a junior synonym of *A. cocosensis*.

In Korea, 10 species and 7 genera of bothid fishes have been reported so far (Kim *et al.*, 2011) and three species were collected from the coastal waters of Jeju Island during the last three years (Kim *et al.*, 2010; Lee and Choi, 2010; Kim *et al.*, 2011).

Recently, two specimens of *A. intermedius* were col-

lected by trammel net from the coastal waters of Jeju Island, Korea. We described its morphological characteristics of this species based on the specimen and newly added it to the Korean fish fauna.

Counts and measurements were followed by the method of Hubbs and Lagler (1964). The examined specimens were deposited at the Fish Genetics and Breeding Laboratory, Jeju National University (JNU), Korea.

Genus *Asterorhombus* Tanaka, 1915

(New Korean name: Git-teol-dung-geul-neob-chi-sok)
Asterorhombus Tanaka, 1915: 567 (type species by original designation: *Asterorhombus stellifer*, 1915).

***Asterorhombus intermedius* (Bleeker, 1866)**

(New Korean name: Git-teol-dung-geul-neob-chi)
(Fig. 1; Table 1)

Platophrys (Arnoglossus) intermedius Bleeker, 1866: 47 (type locality, Menado, Celebes).

Asterorhombus intermedius: Gloerfeltarp and Kailola, 1984: 273 (southern Indonesia and northwestern Australia); Hensley, 1984: 855 (South Africa); Lin *et al.*, 1995: 27 (north Taiwan and Taiping Island); Shirai and Kitazawa, 1998: 47 (Japan); Hensley and Amaoka, 2001: 3816 (western central Pacific).

Material examined. JNU 20090605, one specimen, 130.0 mm (SL), Andeok-myeon, Seogwipo-si, Jeju Island,

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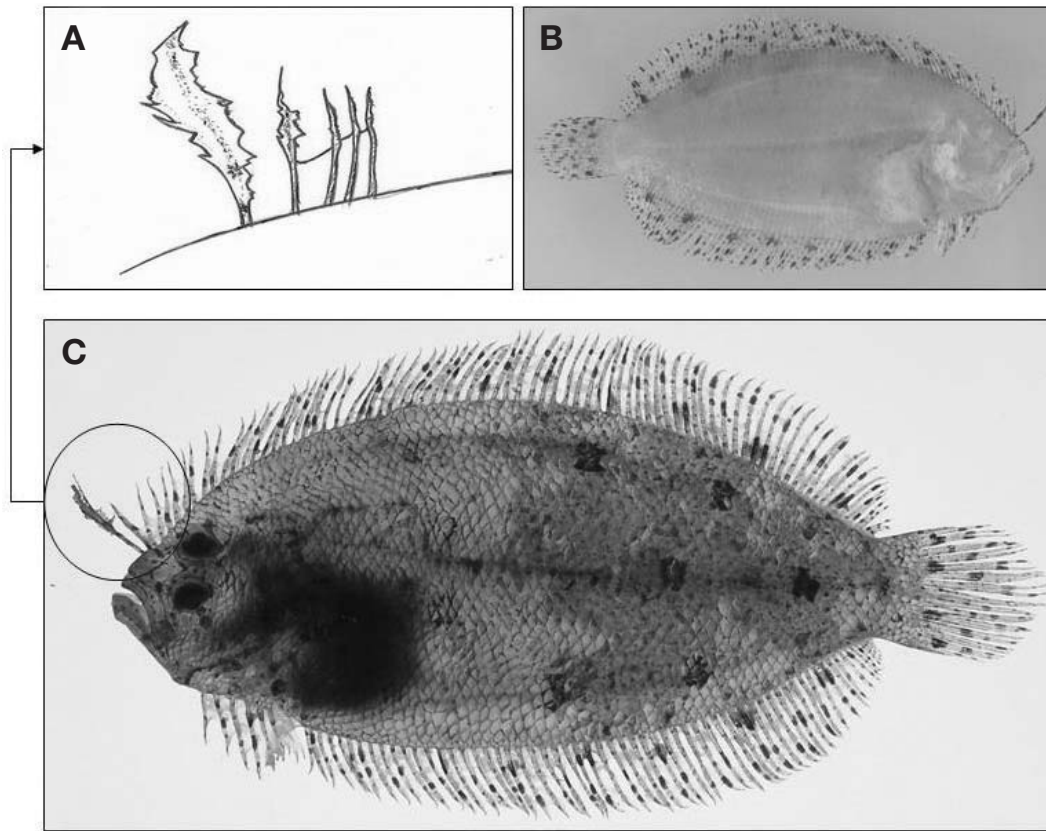


Fig. 1. *Asterorhombus intermedius* (Bleeker, 1866), JNU 20090605, 130.0 mm SL, Andek-myeon, Jeju Island, Korea. First dorsal-fin ray has membranous projections on lateral line (A); blind side (B); ocular side (C).

Table 1. Comparison of morphological characters of *Asterorhombus intermedius*

Morphological characters	Present study	Lin <i>et al.</i> (1995)	Hensley (2005)
Standard length (mm)	130.0~143.4 (n=2)	87.5 (n=1)	20.1~122.3 (n=85)
Counts			
Dorsal fin rays	82~83	83	77~86
Pectoral fin rays (ocular side)	11	–	9~13
Pectoral fin rays (blind side)	9	–	8~10
Ventral fin rays	6	–	–
Anal fin rays	62~63	63	56~65
Caudal fin rays	17	–	–
Gill rakers	0+8	0+8	0+6~11
Lateral line	54~56	54	46~57
Measurements (% of SL)			
Body depth	46.1~47.2	43.9	–
Head length (HL)	27.8~28.8	25.8	–
Measurements (% HL)			
Snout length	25.9~27.3	37.0	–
Lower eyes diameters	14.5~16.3	23.9	–
Interorbital length	6.3~7.5	6.7	–

Korea, with trammel net, 5 June 2009; JNU 20090826, one specimen, 143.4 mm (SL), Andeok-myeon, Seogwiposi, Jeju Island, Korea, with trammel net, 26 August 2009.

Description. Counts for the present specimens are shown in Table 1. Measurements are present as a per-

centage against SL: Dorsal fin rays 82~83; anal fin rays 62~63; pectoral fin rays on ocular side 11; pectoral fin rays on blind side 9; ventral fin rays 6; caudal fin rays 17; lateral line 54~56; first gill rakers 0+8; Measurements are presented as a percentage against SL: Body

depth 46.1~47.2 (46.6); body width 6.3~6.6 (6.5); head length (HL) 27.8~28.8 (28.3); upper jaw length 7.5~9.2 (8.3); snout length 7.5~7.6 (7.5); interorbital length 1.7~2.2 (1.9); lower orbital length 4.0~4.7 (4.4); predorsal fin length 4.2~5.2 (4.7); prepectoral fin length 30.2~30.3 (30.3); preanal fin length 25.9~27.7 (26.8); preventral fin length on ocular side 10.9~14.2 (12.6); preventral fin length on blind side 15.2~15.3 (15.3); dorsal fin base length 88.3~95.8 (92.1); pectoral fin base length 3.6~4.2 (3.9); anal fin base length 69.4~75.8 (72.6); ventral fin base length on ocular side 9.3~9.8 (9.5); ventral fin base length on blind side 5.0~5.3 (5.1); first dorsal fin ray 11.4~16.2 (13.8); length of longest pectoral fin ray 10.7~10.9 (10.8); length of longest anal fin ray 11.9~12.3 (12.1); caudal peduncle depth 12.3~13.2 (12.8); straight lateral length 58.0~63.5 (60.8); curved lateral length 16.5~18.6 (17.5). Measurements are presented as a percentage against HL: body width 22.8~22.9 (22.9); snout length 25.9~27.3 (26.6); upper jaw length 27.1~31.7 (29.4); interorbital width 6.3~7.5 (6.9); lower orbital length 14.5~16.3 (15.4).

Body ovate; anterior profile of head almost straight, becoming curved in front of upper eye; both eyes with tentacle; anterior margin of upper eye slightly posterior to anterior margin of lower eye; interorbital region deeply concave and narrow; posterior tip of maxilla slightly extending to below anterior edge of lower eye; teeth in single row in both jaws; anterior teeth larger and stronger than lateral ones in upper jaw; all teeth in lower jaw stronger and more widely detached than teeth in upper jaw; anterior nostril tube-like, posterior nostril slit-like; the first dorsal-fin ray, like a feather, entirely separated from remaining rays, with membranous projections on lateral surface, the second dorsal-fin ray less with the same projections, but connected other dorsal-fin rays.

Color when fresh. Body brown, fins light brown on ocular side with many dark spots and blotches; larger blotches scattered along upper and lower margin of body and lateral line; smaller blotches along bases of dorsal and anal fins; caudal fin with two blotches patterns near base but not close to dorsal and anal margin of fins; uniformly whitish body except fins on blind side; fins same blotches pattern.

Color after preservation. Ocular side pale brownish, with many small and large dark blotches; clear rows of blotches along upper and lower margins of body, along bases of dorsal and anal fins, and above, below, and on straight part of lateral line; blind side yellowish brown without blotches.

Distribution. Indo-Pacific Ocean (Hensley, 1984; Gloerfelt-Tarp and Kailoa, 1984), Western Pacific Ocean: Hong Kong (Shen, 1967), Taiwan (Lin *et al.*, 1995), Japan (Amaoka, 1969) and Korea (Jeju Island, present study).

Remarks. The present specimens were characterized

by having 82~83 dorsal fin rays, 11 pectoral fin rays on ocular side, 9 pectoral fin rays on blind side, 62~63 anal fin rays and 0+8 gill rakers (Table 1). They were characterized by having membrane of first dorsal fin ray with many projections and conspicuous black spots on the body (Fig. 1). Thus the morphological characters of the present specimens agreed well with those in the previous reports on *A. intermedius* (Hensley, 2005; Lin *et al.*, 1995).

In Japan, two species (*A. intermedius* and *A. fijiensis*) of the genus *Asterorhombus* have been reported so far. The former is distinguishable from the latter by having many valid black spots present on body (vs. indistinct spots for *A. fijiensis*), interorbital space narrow (vs. wide), and 1st dorsal fin ray slightly enlarged (vs. long enlarged) (Nakabo, 2002). We propose a new Korean name, “Gitteol-dung-geul-neob-chi”, for this species.

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한국산 동글넙치과 어류 1 미기록종 *Asterorhombus intermedius*

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요 약 : 동글넙치과에 속하는 *Asterorhombus intermedius* 2개체 (표준체장 130.0~143.4 mm)가 제주도 서귀포시 안덕면 사계리 해역에서 처음으로 채집되었다. 이 종은 첫 번째 등지느러미 주위에 많은 돌기들이 산재하고, 몸과 지느러미에 크기가 다른 어두운 점들이 산재하고 있다. 이 미기록종의 속명과 국명은 각각 “깃털동글넙치속”과 “깃털동글넙치”로 제안하였다.

찾아보기 낱말 : 동글넙치과, 깃털동글넙치, 미기록종, 제주도