

First Record of a Poacher, *Aspidophoroides monopterygius* (Scorpaeniformes: Agonidae) from the East Sea, Korea

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ABSTRACT Six specimens (151.4~171.2 mm in standard length) of the poacher *Aspidophoroides monopterygius* were collected by Danish seine net in the coastal waters off Samcheok and Gangneung, the East Sea, Korea. This species is characterized by a slender body, one dorsal fin, terminal mouth, no barbel on the head, and a pair of nasal spines on the snout. It differs from *Anoplagonus occidentalis* Lindberg in having a nasal spine. We describe it as the first record within the Korean fish fauna, and propose the new Korean name “Ak-eo-jul-go-gi” for this species.

Key words : Agonidae, *Aspidophoroides*, *Aspidophoroides monopterygius*, new Korean record, East Sea

INTRODUCTION

The poachers (family Agonidae) include six subfamilies, 22 genera, and about 47 species, and live at diverse depths, from the intertidal zone to 1,290 m in the North Pacific, Atlantic, and Arctic Oceans. Among the subfamilies, Anoplagoninae Gill, 1861, is characterized by a slender body, one dorsal fin, and no spines on the plates (Sheiko and Mecklenburg, 2004). The family includes 16 species belonging to 10 genera in Korea at present, and is distributed from the middle to the northern part of the East Sea (Kim *et al.*, 2005; Lee and Jeon, 2007).

Jordan and Starks (1904) reviewed the family, recognizing 12 genera and 22 species in Japan. Kanayama (1991) described both their morphological character and phylogenetic classification, and Sheiko and Mecklenburg (2004) suggested a checklist of 47 valid species in 22 genera worldwide.

Recently, we collected six specimens that looked like *Anoplagonus occidentalis* Lindberg, 1950, in the family Agonidae, by Danish seine net at a depth of 137~230 m in the coastal waters off Samcheok and Gangneung,

Gangwon-do. They were identified as *Aspidophoroides monopterygius* (Bloch, 1786), and we describe them here as the first record of this species in Korea. All counts and measurements, and the bony plate terminology, follow those of Kanayama (1991). These specimens have been deposited at the Fisheries Resources Laboratory in East Sea Fisheries Research Institute (ESFRI), Korea.

Genus *Aspidophoroides* Lacepède, 1801

(New Korean genus name: Ak-eo-jul-go-gi-sok)
Aspidophoroides Lacepède, 1801: 227 (type species: *Aspidophoroides traquebar* Lacepède).

Body slender and elongated; one dorsal fin; no spine on dorsal fin; mouth small and terminal; a pair of post-orse nasal spines (Kanayama, 1991).

Aspidophoroides monopterygius (Bloch, 1786)

(New Korean name: Ak-eo-jul-go-gi)

(Fig. 1; Table 1)

Cottus monopterygius Bloch, 1786: 156, pl. 178, figs. 1, 2 (type locality: Greenland).

Aspidophoroides bartoni Gilbert, 1896: 434 (type locality: Alaska); Kanayama in Masuda *et al.*, 1984: 333, pl. 298-M (Japan); Maeda and Amaoka, 1988: 112, fig. 28 (Japan); Sokolovsky *et al.*, 2011: 175, fig. 71

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Fig. 1. *Aspidothoroides monopterygius*, ESFRI 1529, 163.4 mm SL, Gangneung, Gangwon-do, East Sea, Korea. (A) Lateral view; (B) Head.

(Russia).

Aspidothoroides monopterygius: Kanayama, 1991: 88, fig. 37 (key, description, North Pacific and Atlantic); Nakabo in Nakabo, 2002: 661 (Japan); Mecklenburg *et al.*, 2011: 125 (North Pacific, Atlantic, and Arctic); Nakabo and Kai in Nakabo, 2013: 1201 (Japan).

Material examined. ESFRI 1293 ~ 1294, two specimens, 151.4 ~ 156.8 mm in standard length (SL), 37° 10.99'N, 129° 31.12'E → 37° 09.87'N, 129° 31.34'E, Samcheok, Gangwon-do, East Sea, 137 m depth, 5 June 2013, 5 Geoseong-ho, Danish seine net, collected by J.H. Park; ESFRI 1527 ~ 1528, two specimens, 162.5 ~ 171.2 mm in SL, 37° 53.20'N, 128° 56.90'E → 37° 52.80'N, 128° 57.70'E, Gangneung, Gangwon-do, East Sea, 142 ~ 185 m depth, 30 October 2013, Hangdeok-ho, Danish seine net, collected by J.H. Park; ESFRI 1529, one specimen, 163.4 mm in SL, 37° 53.60'N, 128° 57.20'E → 37° 54.15'N, 128° 56.85'E, Gangneung, Gangwon-do, East Sea, 230 m depth, 30 October 2013, Hangdeok-ho, Danish seine net, collected by J.H. Park; ESFRI 2069, one specimen, 154.5 mm in SL, 37° 17.06'N, 129° 31.91'E → 37° 15.95'N, 129° 32.12'E, Samcheok, Gangwon-do, East Sea, 127 m depth, 3 December 2013, 5 Geoseong-ho, Danish seine net, collected by J.H. Park.

Comparative materials examined. *Anoplagonus occidentalis*: ESFRI 593, 78.5 mm in SL, Sokcho, Gangwon-do, East Sea, 24 October 2012, Danish seine net, collected by J.H. Park; ESFRI 850, 116.2 mm in SL, Geoseong, Gangwon-do, East Sea, 140 ~ 150 m depth, 4 January 2013, Danish seine net, collected by J.H. Park.

Description. Meristic and morphometric characters are shown in Table 1. Body slender, extremely elongated and covered with bony plates; mouth small and terminal; upper jaw slightly protruding; posterior margin of the upper jaw not reaching the eye; eye large and located dorsally; a pair of protrorse nasal spines; upper region of the eye protruding; interorbital space concave; single dorsal fin, its base short; dorsal and anal fins located at the mid-body and opposite each other; anal fin base short; pectoral fin slightly large; pelvic fin thread; rays unbranched; anus located just before the origin of

the pelvic fin.

Color of specimens. When fresh, body overall dark brown, with marginal parts of the plates whitish; pale brown ventrally; dark brown longitudinal band at head; upper part of pectoral fin dark brown and lower part pale brown; dorsal fin blackish anteriorly and whitish posteriorly; pelvic and anal fins whitish; caudal fin blackish. No coloration change after fixation, except for a whitish dorsal fin.

Distribution. Samcheok and Gangneung, East Sea, Korea at 137 ~ 230 m depth (present study), Japan, Okhotsk, Bering, Arctic, and Atlantic Seas (Nakabo, 2002; Mecklenburg *et al.*, 2011).

Remarks. The present specimens were easily identified as *Aspidothoroides monopterygius* (Bloch, 1786) on the basis of their slender body, terminal mouth, only one dorsal fin, and nasal spines. The meristic and morphometric characters of the present specimens agree well with the previous descriptions by Bloch (1786) and Kanayama (1991). Among the 16 species of Agonidae in Korea, *Aspidothoroides monopterygius* most resembles *Anoplagonus occidentalis* Lindberg, 1950, but differs in having a pair of nasal spines (vs. none in the latter) and more bony plates at lateral line (49 ~ 54 vs. 43) (Table 1).

There has been much debate about the synonym between *A. monopterygius* (Bloch, 1786) and *A. bartoni* Gilbert, 1896. Based on the morphological similarities between the two species, Kanayama (1991) considered that *A. bartoni* was a junior synonym of *A. monopterygius*. Nakabo (2002) and Nakabo and Kai (2013) subsequently followed this view. Sheiko and Mecklenburg (2004) reviewed the family Agonidae throughout the world, and investigated the type specimens and additional characters of these two species. They considered that *A. bartoni* in the North Pacific and *A. monopterygius* in the North Atlantic to be very similar but distinct species. However, a recent genetic study (mitochondrial cytochrome oxidase I region) by the same authors revealed no genetic divergence (0% ~ 0.2%) between *A. bartoni* from the Chukchi Sea and *A. monopterygius* from the Atlantic Ocean and deemed them a single amphiboreal species (Mecklenburg *et al.*, 2011).

Table 1. Comparison of meristic and morphometric characters of *Aspidophoroides monoptyerygius*

	<i>Aspidophoroides monoptyerygius</i>			<i>Anoplagonus occidentalis</i>	
	Present study	Bloch (1786)	Kanayama (1991)	Present study	Kanayama (1991)
Number of specimens	6	—	36	2	12
Standard length (mm)	151.4~171.2	—	80.2~156.4	78.5, 116.2	45.0~95.2
In % of standard length					
Body depth	5.7~7.7	—	—	6.9~7.1	—
Body width	9.4~11.1	—	—	9.8~10.1	—
Head length	15.3~16.5	—	14.9~18.5	19.5~20.6	20.0~23.8
Predorsal length	52.7~57.3	—	50.0~58.8	55.4~56.4	55.6~58.8
Prepectoral length	18.1~19.6	—	—	19.4~21.5	—
Preanal length	50.8~56.0	—	—	55.9~58.0	—
Prepelvic length	22.3~23.5	—	—	23.6~24.2	—
Preanus length	25.1~26.4	—	—	28.4	—
Pectoral fin length	13.3~15.5	—	13.5~20.0	12.7~12.9	13.2~16.1
Pelvic fin length	7.0~8.8	—	4.3~10.9	5.4~6.4	5.6~9.6
Dorsal fin base length	5.4~8.1	—	—	—	—
Anal fin base length	5.4~6.2	—	—	—	—
Caudal fin length	9.3~10.3	—	8.6~13.9	—	—
Caudal peduncle length	37.1~43.1	—	—	—	—
Caudal peduncle depth	1.4~1.6	—	—	1.9~2.1	—
In % of head length					
Snout length	23.3~24.9	—	20.8~25.6	25.5~27.5	26.3~29.4
Eye diameter	25.0~26.2	—	23.3~30.3	15.8~19.8	15.6~20.4
Interorbital width	15.7~17.3	—	14.3~20.8	13.8~14.1	14.7~19.6
Postorbital length	50.6~54.0	—	—	55.2~56.8	—
Upper jaw length	20.7~26.8	—	—	—	—
Suborbital length	12.3~16.4	—	—	—	—
Dorsal fin length	34.5~45.5	—	41.7~52.6	—	26.3~32.3
Anal fin length	28.7~35.2	—	29.4~45.5	—	26.3~31.3
Counts					
Dorsal fin rays	5	5	5~6	5	4~6
Anal fin rays	5	5	4~6	5	4~5
Caudal fin rays	5+5	11	5+5	6+5	6+5~6
Pectoral fin rays	9	9	9~11	11	10
Pelvic fin rays	I, 2	2	I, 2	I, 2	I, 2
Bony plates					
Lateral line	49~54	—	47~53	43	42~44
Predorsal	22~24	—	20~25	21~22	20~22
Middorsal	21~24	—	16~25	18	14~18
Dorsal-lateral	28~30	—	26~32	28	26~29
Ventre-lateral	25~27	—	23~28	25	22~25
Midventral	22~25	—	16~25	18	16~19

We herein propose a new Korean name, “Ak-eo-jul-go-gi” for this species.

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한국산 날개줄고기과 (Agonidae) 어류 1 미기록종, *Aspidophoroides monopterygius*

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요 약 : 쏨뱅이목 날개줄고기과에 속하는 *Aspidophoroides monopterygius* 6개체 (표준체장 151.4~171.2 mm)가 강원도 삼척과 강릉 연안에서 동해구의끝이중형저인망에 의해 채집되었다. 본 종은 긴 체형, 1개의 등지느러미, 입이 몸의 전방에 위치, 두부에 수염이 없으며 주둥이에 몸의 후방을 향하는 날카로운 비골극이 있는 것이 특징이다. 본 종은 민어치(*Anoplagonus occidentalis*)와 형태적으로 매우 유사하지만, 비골극을 가지는 점에서 차이가 있다. 우리나라에서 처음 보고되는 본 종의 국명으로 “악어줄고기”를 제안한다.

찾아보기 낱말 : 날개줄고기과, 악어줄고기속, 악어줄고기, 미기록종, 동해