

First Record of Gobiid Fish, *Astrabe fasciata* (Perciformes: Gobiidae) from Dokdo, Korea

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ABSTRACT The one specimen of *Astrabe fasciata*, belonging to the family Gobiidae was collected from the Dokdo of East Sea in Korea, and described as the first record from Korea. The specimen is characterized by having two dorsal fins, pectoral fin with free rays (five upper, two lower), protrusion on upper posterior part of supraorbital dermal fold, white spots dispersed on head and five white transverse bands on the body. We proposed its Korean name “Dok-do-eol-ruk-mang-duk-sok” and “Dok-do-eol-ruk-mang-duk” for the genus and species, respectively.

Key words: *Astrabe fasciata*, new record, Gobiidae, Dokdo, description

INTRODUCTION

The genus *Astrabe* Jordan and Snyder, 1901 includes 3 species, *A. fasciata*, *A. flavimaculata* and *A. lactisella* (Akihito and Meguro, 1988; Eschmeyer, 2015). It is distributed from Aomori to Nagasaki in western Japan (Akihito and Meguro, 1988). The genus characterized by having following characteristics: pelvic fin rays I, 5; scales absent on head and before pelvic fins; 4~8 free soft rays on upper end of pectoral fin; transverse bands on the body.

During an investigation of ichthyofauna of Dokdo, we found a single specimen of *Astrabe fasciata* Akihito and Meguro (1988) (Fig. 1). Which have not been recorded as inhabiting Korea waters. Therefore, we herein describe *A. fasciata* as the first record from Korea based on one specimen.

Measurements followed generally Hubbs and Lagler (2004) and expressed in percentage of standard length (SL) or head length (HL). Terminology and counting methods followed Akihito and Meguro (1988).

The specimen examined is deposited in the National Institute of Biological Resources (NIBR), Korea as voucher.

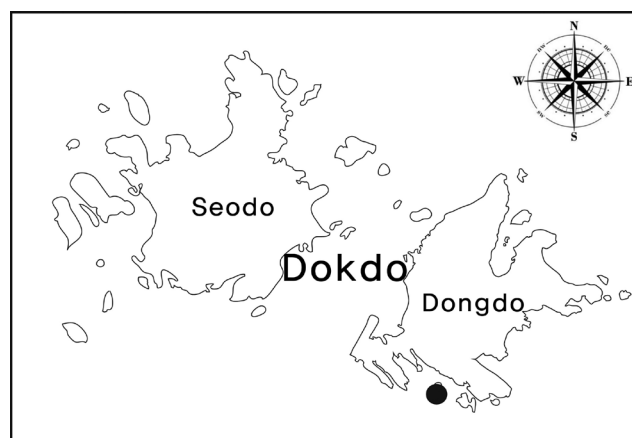


Fig. 1. A map showing sampling site of *Astrabe fasciata* from the Dokdo of East Sea, Korea.

Genus *Astrabe* Jordan and Snyder, 1901

(New Korean name: Dok-do-eol-ruk-mang-duk-sok)

Astrabe Jordan and Snyder, 1901: 119 (type species: *Astrabe lactisella* Jordan and Snyder, 1901).

Body robust, caudal peduncle deep. Teeth in both jaws simple; canines absent; teeth absent on vomer. Gill openings do not continue forward ventrally; isthmus broad; two low fleshy lobes on inner margin of pectoral girdle. Head naked; skin clearly wrinkled; body with small em-

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Fig. 2. *Astrabe fasciata*, NIBR-P30748, 34 mm SL, from the Dokdo of East Sea, Korea.

bedded scales, cover posterior part of body, extending on sided almost to base of pectoral fin. Dorsal fin separate; first dorsal fin with 3 spines, second with 11 rays. Anal fin with 10 rays. Upper rays of pectoral simple, with free tips. Pelvic fins I, 5, all connected; free from the body posteriorly. Color black, noticeably marked with white (Jordan and Snyder 1901; Lindberg and Krasnyukova, 1989).

***Astrabe fasciata* Akihito and Meguro, 1988**

(New Korean name: Dok-do-eol-ruk-mang-duk)

(Figs. 2, 3, Table 1)

Astrabe fasciata Akihito and Meguro, 1988: 414 (type locality: Tappizaki, Miumaya, Higashisugaru-gun, Aomori Pref., Japan).

Material. NIBR-P 30748, 34 mm in standard length (SL), 23 July 2014, collected under rock at a depth 5 m, near Haenyeobawi Dongdo of Dokdo, East Sea, Korea.

Description. Comparison of counts and measurements are shown in Table 1. Measurements in % of SL: head length 31.1; predorsal length 46.4; preanal length 62.9; caudal peduncle depth 13.8. Measurements in % of HL: snout length 22.6; eye diameter 12.2; upper jaw length 36.8; interorbital width 21.7.

Body slender, compressed from caudal peduncle; head pressed; tips of anterior and posterior nostrils protruding; no sensory canals; scales very small and thin, present only on the central part of body, not extending to dorsal and anal fin; predorsal scales absent; dorsal fin separated, first dorsal fin with three spines and second dorsal fin with one spine; pectoral fin with unbranched rays in upper and lower part, five upper and two lower free soft rays; pelvic fin rays united by crenate frenum and by connecting membrane between whole length of 5th soft rays.

The cephalic sensory organs absent, dermal folds and

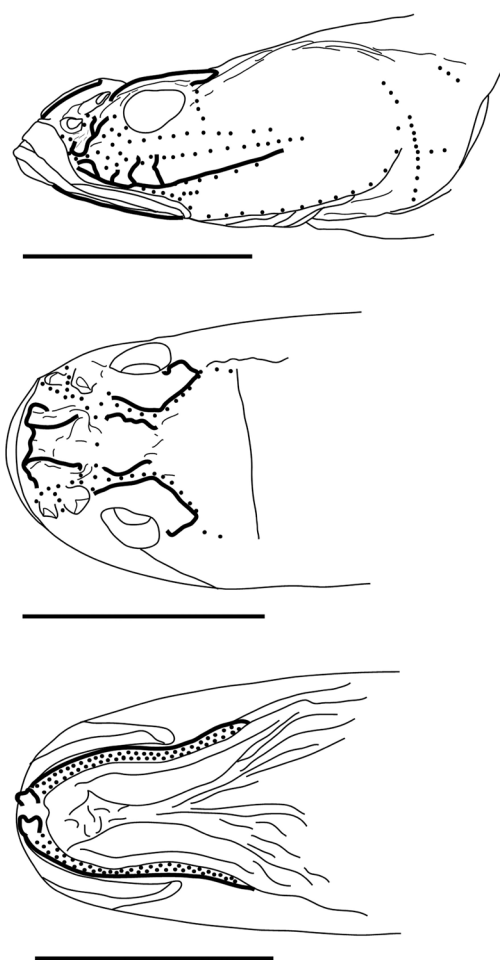


Fig. 3. Dorsal (above), lateral (middle) and ventral (below) of the dermal folds and sensory papillae of *Astrabe fasciata* NIBR-P 30748, 34 mm SL. Bold lines indicate the edges of the dermal folds and dots are sensory papillae (bar = 5 mm).

sensory papillae present on the head (Fig. 3). Dermal folds present on the snout, interorbital, cheek region, under margin of lower jaw and upper margin of eye; protrusion

Table 1. Comparison of counts and measurements in *Astrabe fasciata* and similar species, *A. lactisella*

Meristic characters	Present study		Akihito and Katsusuke (1988)	
	<i>Astrabe fasciata</i>	<i>Astrabe fasciata</i> *		<i>Astrabe lactisella</i>
		Holotype	Paratypes	Holotype
Total length (mm)	39.5 (n = 1)	58.4 (n = 1)	32.6~42.4 (n = 2)	35.2 (n = 1)
Standard length (mm)	34.0	48.0	27.2~35.0	28.2
% of SL				
Head length	31.1	—	—	—
Predorsal length	46.4	—	—	—
Preanal length	62.9	—	—	—
% of HL				
Eye diameter	12.2	—	—	—
Upper jaw length	36.8	—	—	—
Snout length	22.6	—	—	—
Interorbital width	21.7	—	—	—
Counts				
Dorsal fin rays	III-I, 10	III-I, 10	III-I, 10~11	III-I, 10
Anal fin rays	I, 9	I, 9	I, 9	I, 9
Pectoral fin rays	25	26	25~27	26
Upper free rays	5	5	5	7
Lower free rays	2	1	2	1
Scales in a longitudinal row	53	54	51~53	56
Scales in a transverse row	14	11	10~14	22
Predorsal scales	0	0	0	0
Vertebrae	14 + 16 = 30	14 + 16 = 30	14 + 16 = 30	15 + 15 = 30

*, original description

on upper posterior part of dermal fold along upper margin of eye; several short transverse dermal folds on upper side of longitudinal dermal fold below eye.

Color after preservation. Body brown, white spots dispersed on head. Five white transverse bands on the body. First transverse band across base of pectoral fin and wider than other bands. Second band across anterior part of first dorsal fin extending to anterior part of anus. Third band across anterior part of second dorsal fin extending to anterior part of anal fin. Fourth band across posterior part of second dorsal fin extending to posterior part of anal fin, not continued.

Distribution. This species have been known from Western Japan (Aomori Pref. Niigata Pref. and Nagasaki Pref.; Akihito and Meguro, 1988) and Dokdo of East Sea, Korea (Present study).

Remarks. The present specimen was collected in the Dokdo of East Sea, Korea. It was characterized by having two dorsal fins, pectoral fin with free rays (five upper, two lower), protrusion on upper posterior part of supra-orbital dermal fold, white spots dispersed on head, five white transverse bands. These morphological characters of the present specimen were examined and compared with previously reported on *A. fasciata* and well matched original description by Akihito and Meguro (1988) (Table 1).

Therefore we identified our specimen to be *A. fasciata* based on the morphological characters.

This species is morphologically similar to *A. lactisella* (Akihito and Meguro, 1988; Table 1). *A. fasciata* is easily distinguishable from *A. lactisella* by having 14 scales in a transverse row (vs. 19 to 22 scales for *A. lactisella*), narrow first white transverse band (vs. broad band), second white transverse band across the anterior part of the first dorsal fin extending to the ventral side (vs. blotch on the anterior part of the first dorsal fin or none), five free soft rays of the pectoral fin (vs. 6 to 8 free soft rays), 53 scales in a longitudinal row (vs. 55 to 60 scales), white banded pectoral fin (vs. white-blotched pectoral fins) (Akihito and Meguro, 1988; Nakabo, 2002).

We herein propose a new Korean fish name “Dok-do-eol-ruk-mang-duk-sok” and “Dok-do-eol-ruk-mang-duk” for the genus and species, respectively.

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독도에서 채집된 망둑어과 어류 1미기록종, *Astrabe fasciata*

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요 약 : 독도 어류조사에서 채집된 망둑어과의 *Astrabe fasciata* 1개체를 한국 미기록종으로 기재한다. 본 종은 2개의 등지느러미, 가슴지느러미에 위쪽에 유리 연조가 있으며, 눈 상부에 피부 주름이 돌출되어 있고, 머리에 흰점들이 흩어져 있으며, 다섯개의 흰색 세로 줄무늬를 가지는 것이 특징이다. 본 연구에서는 본 속과 종의 국명을 각각 독도얼룩망둑속, 독도얼룩망둑으로 제안한다.

찾아보기 낱말 : 독도, 미기록종, *Astrabe fasciata*, 독도얼룩망둑, 망둑어과