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First Record of the Goby *Redigobius bikolanus* (Perciformes: Gobiidae) from Korea

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ABSTRACT A specimen of *Redigobius bikolanus* (29.0 mm SL) belonging to the family Gobiidae was collected by a hand net from the estuary of Changgo-cheon (river) in Andeok-myeon, Jeju Island, Korea. This specimen was characterized by having 26 lateral line scales, 7 predorsal scales, 7 transverse scales, anterior oculoscapular canal, preopercular canal, and four black spots between origin of anal fin and lower origin of caudal fin. The morphological charcteristics of the specimen well matched those of *Redigobius bikolanus* previously reported. Thus, we newly add this species to the list of Korean fish fauna and propose its new Korean name, "Jeom-bak-i-mang-duk".

Key words : Gobiidae, *Redigobius bikolanus*, first record, Jeju Island, Korea

INTRODUCTION

The Gobies (Family Gobiidae), comprising about 210 genera and 1,950 species, are widely distributed in fresh, brackish and saltwater (Nelson, 2006). They are characterized by having pelvic fins modified into an adhesive or sucking disc. From the various aquatic habitats, 28 genera and 63 species of the gobies have been collected and reported in Korea so far (Kim *et al.*, 2005a, b, 2007; Lee, 2010).

In this study, a single specimen of *Redigobius bikolanus* was collected by a hand net from the blackish water (0.12 psu in salinity) of Changgo-cheon (river) in Andeok-myeon, Jeju Island, Korea. This sampling area mainly consists pebbles sporadically having some mud. As *R. bikolanus* has not been reported in Korea yet, the morphological characters of the specimen were described and it was newly added to the list of Korean fish fauna.

Counts and measurements of this specimen were followed by the method of Nakabo (2002). The examined specimen was deposited at the Fish Genetics and Breeding Laboratory, Jeju National University (JNU), Korea.

Genus *Redigobius* Herre, 1927

(New Korean genus name: Jeom-bak-i-mang-duk-sok)

Redigobius Herre, 1927: 98 (type species: *Gobius sternbergi* Smith 1902); Akihito in Masuda *et al.*, 1984: 269; Allen, 1991: 191; Larson and Murdy, 2001: 3591.

The genus *Redigobius* comprises 15 species in the world (the Catalog of Fishes On-line: www.calacademy.org); head compressed, body often compressed, few species elongate; mouth small and terminal in females, large and inferior to subinferior in males (Larson and Murdy, 2001)

Redigobius bikolanus (Herre), 1927

(New Korean name: Jeom-bak-i-mang-duk)
(Fig. 1; Table 1)

Vaimosa bikolana Herre, 1927: 151 (type locality: Philippines).

Redigobius bikolanus: Akihito and Meguro, 1975: 49-52 (Japan); Akihito in Masuda *et al.*, 1984: 269 (Japan); Allen 1991: 192 (New Guinea); Rainboth, 1996: 207; Pusey *et al.*, 2000: 72 (North-eastern Australia); Randall and Lim, 2000: 640 (South China Sea); Larson and Murdy, 2001: 3601 (Western Central Pacific); Hutchins, 2001: 44 (Australia); Akihito *et al.* in Nakabo, 2002: 1241 (Japan); Tan and Lim, 2004: 111 (Indonesia).

Material examined. JNU 20090703, one specimen, 29.0 mm in standard length (SL), female, with a band net., Andeok-myeon, Jeju-si, Jeju-do, Korea, 3 July 2009.

Description. Dorsal fin rays VI-I, 7; anal fin rays I, 6; pectoral fin rays 16; pelvic fin rays I, 5; lateral line scales

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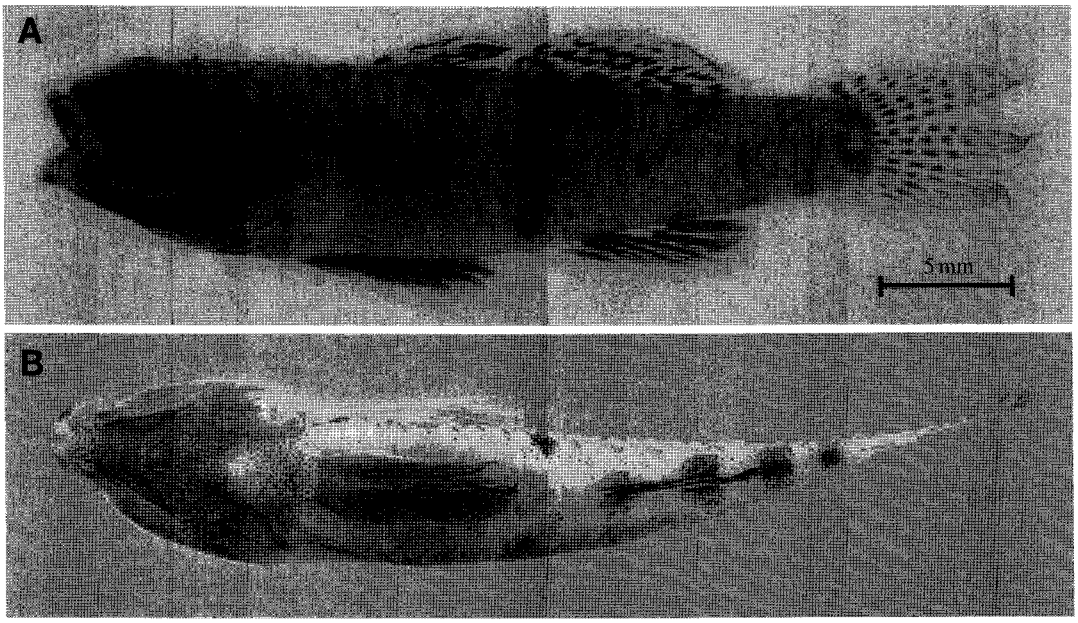

Fig. 1. *Redigobius bikolanus*, JNU 20090703, 29.0 mm SL, Changgo-cheon in Andeok-myeon, Jeju Island, Korea. A: lateral view, B: ventral view.

Table 1. Morphological characters of *Redigobius bikolanus* observed in this study and reported previously

Morphological characters	Present study	Herre (1927)	Akihito and Meguro (1975)
Standard length (mm)	29.0 (n=1)	23.0~26.0 (n=6)	16.0~41.0 (n=30)
Counts			
Dorsal fin rays	VI-I, 7	VI-I, 7	VI-I, 7
Anal fin rays	I, 6	I, 6	I, 6~7
Pectoral fin rays	16	–	15~17
Lateral line scales	26	26	26~28
Transverse scales	7	8	7
Predorsal scales	7	7	6~8

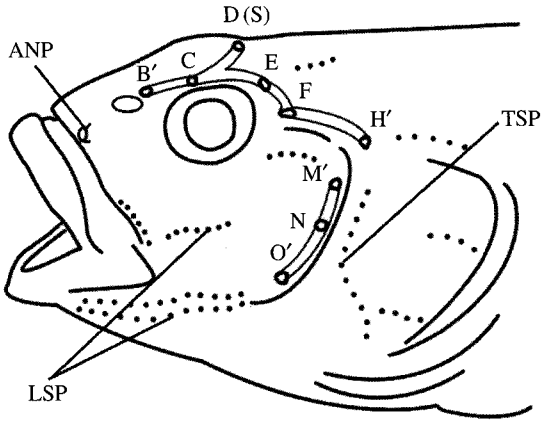

Fig. 2. Diagram of *Redigobius bikolanus* sensory canals and sensory papillae. B′ to O′, sensory canal pores; a prim mark, terminal pore; (S), a single pore; dots, sensory papillae; ANP, anterior nasal pore; LSP, longitudinal sensory papillae; TSP, transverse sensory papillae.

26; predorsal scales 7; transverse scales 7.

Measurements are presented as a percentage against SL: body width 20.0; head length 29.9; body depth at origin of first dorsal fin 23.6; body depth at origin of anal fin 20.7; snout length 8.1; eye diameter 6.4; interorbital width 5.9; jaw length 7.4; Snout to origin of first dorsal fin 38.4; snout to origin of second dorsal fin 55.4; snout to origin of anal fin 62.6; caudal peduncle length 26.0; caudal peduncle depth 12.2; pectoral fin length 23.7; pelvic fin length 22.5; base of first dorsal fin 10.5; base of second dorsal fin 16.6; base of anal fin 12.9; caudal fin length 20.5.

Body is cylindrical and slightly depressed anteriorly; mouth rather small, thick; posterior end of upper jaw extends anterior margin of eyes; upper jaw is larger than lower jaw; interorbital narrow; operculum scaled; cheek scaleless; third dorsal spine is larger than other dorsal spines; pelvic fins modified into a sucking disc; sensory canal pores existed on the head; pattern of sensory canal pores is equivalent to previous study (Akihito *et al.*, 1984) (Fig. 2).

Color when fresh. Head dark brownish having two darker brownish bars from eye to jaw; body brownish and black blotches along dorsal fin base and lateral of body at regular intervals; two blotches on the base of second dorsal fin; second dorsal fin with two distinctive longitudinal black stripes; four black blotches on the ventral median line between origin of anal fin and lower base of caudal fin; two black blotches on the base of caudal fin; several horizontal black stripes formed with black spots on caudal fin.

Color after preservation. Head brown and body light brownish; black blotches on the lateral of body became relatively fainter when compared with either bars on head or spots on fins.

Distribution. Known from Western Pacific Ocean: Japan (Akihito and Meguro, 1975), Korea (Jeju Island: present study) to north-eastern Australia (Pusey *et al.*, 2000) and westward to Indonesia (Tan and Lim, 2004).

Remarks. The present specimen is characterized by the following taxonomic traits. The posterior end of upper jaw reaches anterior margin of eyes (Fig. 1). It has 26 lateral line scales, 7 predorsal scales, 7 transverse scales (Table 1), the anterior oculoscapular canals depicted with B′, C, D (single), E, F, and H′, and the preopercular canal with M′, N and O′ (Fig. 2). These morphological characteristics of the specimen agreed well with those of the female *R. bikolanus* (Akihito *et al.*, 1984; Akihito *et al.*, 2002), and thus our specimen is most likely to be a female. In case of the male *R. bikolanus*, the posterior end of upper jaw extends beyond the posterior margin of eyes and the first dorsal fin is elongated (Akihito *et al.*, 1984; Akihito *et al.*, 2002).

In Japan, two species (*R. bikolanus* and *R. balteatus*) of the genus *Redigobius* have been reported so far. The former is distinguishable from the latter by having the predorsal scales 6~8 (vs. 11 for *R. balteatus*), transverse scales 7 (vs. 9), no distinct black band (vs. distinct black band) below 1st dorsal fin (Akihito and Meguro, 1975; Akihito *et al.*, 2002).

At a glance, *R. bikolanus* is morphologically similar to either *Mugilogobius abei* or *M. fontinalis* among the known Korean gobiidae. However, *R. bikolanus* is easily distinguished from either *M. abei* or *M. fontinalis* by having the predorsal scales 6~8 (vs. 20 for *M. abei*; vs. 21 for *M. fontinalis*), transverse scales 7 (vs. 14; vs. 12) and lateral line scales 26~28 (vs. 39; vs. 39) (Akihito and Meguro, 1975; Akihito *et al.*, 2002). We propose a new Korean name, "Jeom-bak-i-mang-duk", for this species.

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한국산 망둑어과 어류 1미기록종, *Redigobius bikolanus*

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요 약 : 망둑어과(Family Gobiidae)에 속하는 *Redigobius bikolanus* 1개체가 제주도 서귀포시 안덕면 창고천의 기수 지역에서 채집되었다. 이 종은 측선 비늘수 26~28개, 측선상부 비늘수 6~8개, 측선하부 비늘수 7개, 뒷지느러미 기점에서 꼬리지느러미 밑 기점까지 4개의 점이 있으며, 암컷의 경우 위턱의 뒤 가장자리가 눈의 앞부분까지 도달하며, 수컷의 경우 위턱의 뒤 가장자리가 눈을 지나는 특징을 갖고 있다. 본 종의 신한국명을 "점박이망둑"이라고 명명하였다.

찾아보기 낱말 : 망둑어과, 점박이망둑, 미기록종, 제주도