

## A New Record of the Thorny Flathead Fish, *Rogadius asper* (Platycephalidae) from Korea

Chung -Lyul Lee and Dong -Soo Joo

Dept. of Biology, College of Natural Sciences, Kunsan National University,  
Kunsan 573-360, Korea

A thorny flathead fish, *Rogadius asper* Cuvier and Valenciennes of family Platycephalidae was collected for the first time in Pusan, Korea. The *R. asper* is closely similar to *R. patriciae* in exomorphological features but well distinguished from the following characters : a strong antrose spine of preopercle, 4 fine spines of serrations on the occipital, caudal fin with the dark vertical bands and first dorsal fin with black linear patterns. A new Korean name "Baneul-Yangtae" is proposed for the *R. asper*.

### Introduction

Family Platycephalidae belongs to the order Scorpaeniformes is widely distributed in the world has about 21 genera with 60 species or more (Nelson, 1984), of which 5 genera with 5 species from Korea were reported by Chyung (1977) : *Platycephalus indicus*, *Ratabulus megacephalus*, *Cociella crocodila* ; *Inegocia japonica* and *Onigocia spinosa*. Recently Jeon (1992) added *Suggrundus meerdervoorti* as a new record from the coasts of western Korea. Therefore, 6 genera with 6 species of family Platycephalidae were listed in all in Korea so far. These fishes are widely distributed in the Indo-Pacific region (Nelson, 1984) and also occur commonly in Korean waters. They are valuable and popular food fishes for the Koreans.

The family Platycephalidae was revised by Matsubara and Ochiai (1955) upon the osteological features of many specimens from Japan and East China Sea, who classified into 8 genera with 10 species. Recently Masuda *et al.* (1988) and Nakabo (1993) reported this family from Japan as 13 genera with 19 species.

In this study, 12 specimens which collected for the first time in southern coast of Korea were described as a new record from Korea. All counts and measurements of the specimens were made mainly according to the method of Matsubara and Ochiai (1955). The examined specimen is deposited at the Department of Biology, College of Natural Sciences, Kunsan National University (BKNU).

**Genus *Rogadius* Jordan et Richardson, 1908**

(New Korean genus name : Baneul-Yangtae-sog)

*Rogadius* Jordan et Richardson, 1908. Proc. U. S. Nat. Mus., 33 : 630

(Type specimen : *platycephalus asper* Cuvier et Valenciennes)

Head greatly depressed. Interorbital width extremely narrow. Spines on the head strong. Preopercle has a stout antrorse spine on lower margin of it and 4 spines at the angle. The bony crest above and below the orbital has numerous and serrated small spines. Anterior nostril with a dermal flap posteriorly. Interopercular flap absent. Teeth on jaw either villiform or granular in broad band.

***Rogadius asper*(Cuvier and Valenciennes), 1829**

(New Korean name : Baneul-Yangtae)

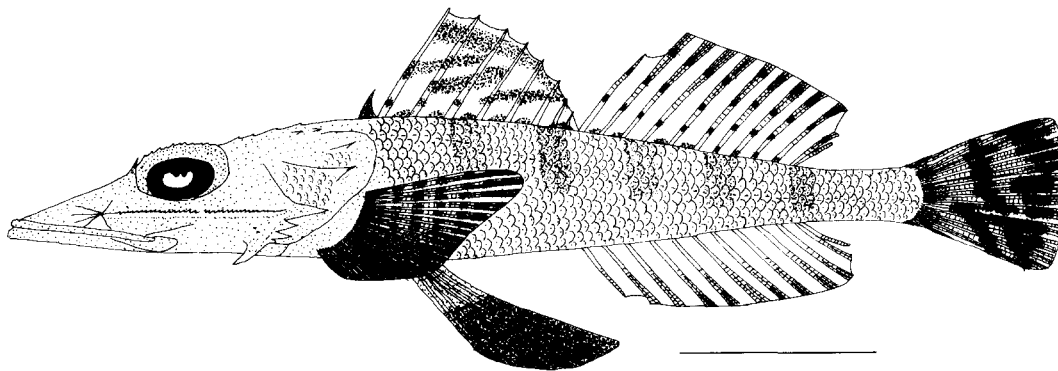


Fig. 1. Lateral view of *Rogadius asper*. No. 905 SL. 180.5mm. Scale bar indicates 30mm.

*Platycephalus asper* Cuvier et Valenciennes, 1829. Hist. Nat. Poiss., 4 : 257.

*Rogadius asper* Jordan and Richardson, 1908. p. 63, fig. 1. Swatow, China - Matsubara and Ochiai, 1955. Memoirs of the College of Agr., Kyoto Univ., No. 68, p. 74 - Matsubara, 1979. Ishizaki-Shoten, Tokyo, Japan, p. 1120 - Chu, 1985. Fujian Science and Technology Press, Fujian, China, p. 502 - Masuda, H., K. Amaoka, C. Araga, T. Uyeno and T. Yoshino, 1988. Tokai University Press, p. 321 - Nakabo, T. 1993, Tokai University Press, p. 536.

**Material examined** : BKNU 903,905-915, 12 specimens, 120.2-168.6mm in standard length, Pusan, Chung-gu, Nampodong, February 3, 1993.

**Description** : Dorsal fin rays I-VI-11-12, anal fin rays 11, pectoral fin rays 20-23, gill rakers 1+6-7, preopercular spine 5 (rarely 4 or 6), scales in lateral line 54-57, spinous scales in lateral line 8-11, caudal fin rays 21-25, branched caudal fin rays 9-13,

ventral fin rays I,5.

Body depth 12.39–14.83 ( $13.58 \pm 0.76$ ) in standard length; head length 38.40–42.15% ( $40.37 \pm 1.18$ ); caudal peduncle length 8.94–10.76 ( $9.66 \pm 0.60$ ); caudal peduncle depth 4.53–5.22 ( $4.94 \pm 0.21$ ); length of predorsal 36.38–40.23 ( $38.36 \pm 1.05$ ); length of prepectoral 30.77–34.56 ( $32.63 \pm 1.07$ ); length of preventral 44.79–41.80 ( $43.35 \pm 0.94$ ); length of preanal 60.95–66.60 ( $63.69 \pm 1.58$ ); distance between pectoral and ventral fin 10.26–11.62 ( $11.01 \pm 0.42$ ); distance between ventral and anal fin 18.11–22.71 ( $20.85 \pm 1.38$ ). Snout length 32.48–34.05% ( $33.44 \pm 0.42$ ) in head length; eye diameter 22.02–25.04 ( $23.84 \pm 0.85$ ); interorbital width 4.85–8.34 ( $5.77 \pm 0.90$ ).

Comparisons of taxonomic characteristics among the present specimen, *R. asper* and *R. patriciae* are shown in Table 1.

Head greatly depressed. Caudal peduncle slightly compressed, with tapering down the body. Head and mouth large. Lower jaw slightly projecting than upper. Eye large and located on the dorsal of head. Interorbital width remarkably narrow. Its width shows about one-fourth as wide as the eye diameter. Eye diameter shorter than snout length and 2.92–4.84 (4.20) times of the interorbital width.

The preopercle has 5 spines (rarely 4 or 6), with an antrorse spine on lower margin and 4 spines pointing backward or downward at the angle (Fig. 2). Bony ridges on the surface of the occipital have 4 fine spines of serrations. The several processes on the surface of head well developed, but they are small. Dorsal fin is two, with a shortest spine located prior to first dorsal fin. The upper and lower jaw are made of teeth bands, but the band of lower jaw are much narrower than that of the upper jaw, lacking in the incision on the inner side, but becomes abruptly narrower at about the anterior one-third of it. The teeth forming the innermost 1 or 2 series are pointed, but the others are mostly granular in shape, with the cutting edge in some of them. The inner side of the lower jaw is deeply incised at about the anterior one-third of it. The teeth of lower jaw are mostly granular in shape except for those of the innermost rows, where the teeth are pointed bluntly (Fig. 3). Vomerine teeth are canine-like, placed sparsely in the slight ir-

Table 1. Comparison of important taxonomic characters among the present specimen, *R. asper* and *R. petriciae*

Characters	Present specimen	<i>R. asper</i> *	<i>R. patriciae</i> *
Dorsal fin rays	I–VII–11–12	I–VIII–11	I–VII–IX–12
Anal fin rays	11	11	11
Pectoral fin rays	20–23	21–23	20–22
Pored scales in lateral lines	54–57	47–55	52–54
Antrose spines of Preopercle	one	one	one
Serration on the occipital	4 spines	4 spines	small and multiple
Black band of caudal fin	vertical	vertical	horizontal

\* : from Masuda *et al.* (1988) and Nakabo (1993.)

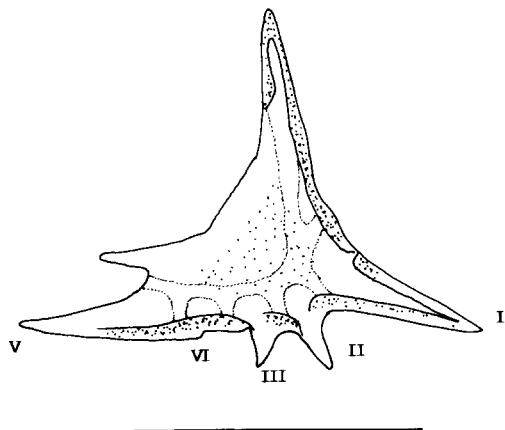


Fig. 2. The outline of left preoperculum.  
I to V : preopercular spines  
Scale bar indicates 10mm.

regular teeth band (Fig. 4). Palatine teeth are also placed sparsely in two rows behind the middle of the vomerine band, all uniformly large, sharply pointed and more or less canine-like. The lower pharyngeal bones are made with triangular band of teeth. The teeth on upper pharyngeal are grouped into three patches on each side (Fig. 4). Roughly speaking, the anteriormost patch is rectangular. The middle one is triangular, and the hindmost one is ovoid in shape. The middle patch becomes narrower in-

wardly, but the hindmost one is usually broader anteriorly (Fig. 4). The gill-rakers are stout, more or less tapering and pointing at the tip. The discal tubercles are usually set irregularly into two series, large and interpolated between gill-rakers. Flap located behind anterior nostril pore. Pelvic fin placed behind pectoral base. Scales is separated easily.

**Body color** : Body brownish above, whitish below, 4 or 5 darkish bands on the surface of the body. Also 3 or 4 dark bands vertically in the caudal fin, with lighter at base of it. Upper part of pectoral fin with brownish spots, lower part dark blackish. Anterior part of ventral fin with darkish small spots, posterior part black. First dorsal fin with black line patterns, second dorsal fin with blackish spots on the fin rays.

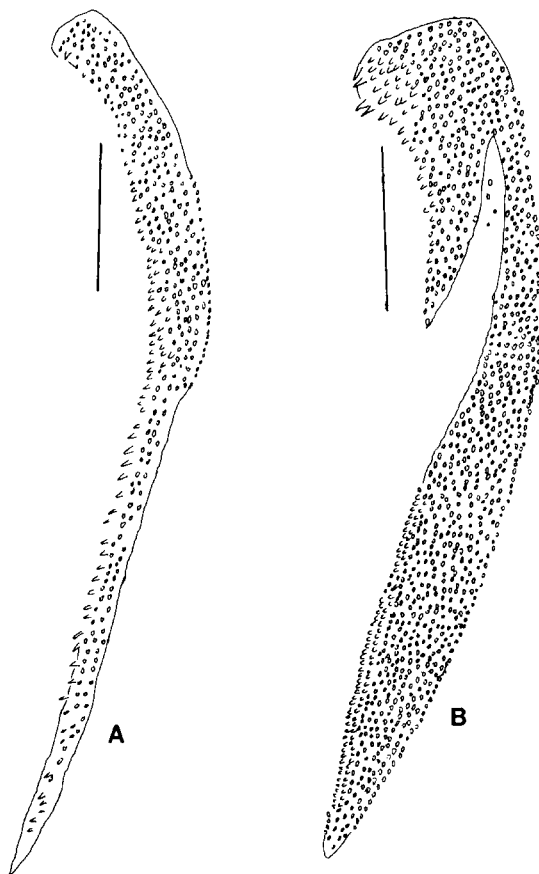


Fig. 3. The teeth band of *Rogadius asper*  
A : lower jaw, B : upper jaw  
Scale bars indicate 3mm.

**Remark :** *Rogadius asper* distributed in southern coast of Korea is closely resembled *R. patriciae* in exomorphological but distinguished from the following characters : Preopercle has a stout antrose spine on lower margin of it (*R. patriciae* has not). Bony ridges on the occipital with 4 fine serrations (*R. patriciae* has many fine serrations). In addition to, two species is well distinguished into the patterns of the caudal fin and first dorsal fin (Table 1). The interorbital width is about one-fourth as width as eye diameter in Korean species, whereas it was one-fifth (Matsubara and Ochiai, 1979), to a half (Fowler, 1928) in the latters.

*R. asper* is distributed mainly in the coastal seas of the Pacific, East China Sea, Phillipines and from southern to mid-part of Japan, but *R. patriciae* is distributed plantfully in the shallow sea of Okinawa and West Australia.

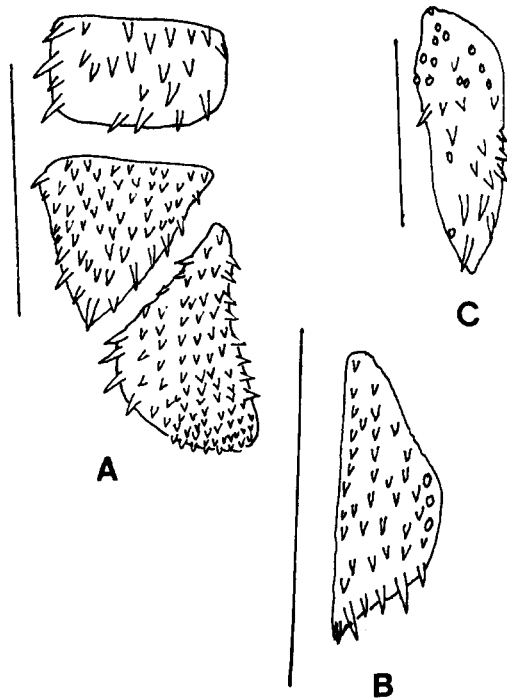


Fig. 4. The pharyngeal and vomerine teeth.

A : Left upper pharyngeal teeth

B : Left lower pharyngeal teeth

C : Vomerine teeth

Scale bars indicate 3mm.

## References

- Chu, Y. 1985. The fishes of Fujian Province. part II, Fujian Science and Technology Press, China, pp. 498-511.
- Chyung, M. K. 1977. The Korean fishes. Ilji-sa, pp. 523-527.
- Cuvier, C. and A. Valenciennes, 1829. Histire naturelle des poissons 4. \*
- Flower, H. W. 1928. The fishes of Oceania. Mem. Bernice P. Bishop Mus., 10, pp. i-iii, 1-540, figs. 1-82, pls. 1-49. \*
- Jeon, B. D. 1992. A study on fishes along the coast of Cholabuk-do, Korea. Dissertation, Chonbuk National University, pp. 14-15.
- Jordan, D. S. and R. E. Richardson. 1908. A review of the flat-heads, gurnards, and other mailcheeked fishes of the waters of Japan. Proc. U. S. Nat. Mus., 33(1581), pp. 629-670.
- Masuda, H., K. Amaoka, C. Araga, T. Uyeno, and T. Yoshino. 1988. The fish of the Japanese archipelago, Tokai University Press, p. 321.
- Matsubara, K. 1979. Fishes morphology and hierarchy. 2nd ed., part II, Ishizaki-Shoten, pp. 1102-1123.
- Matsubara, K. and A. Ochiai. 1955. A revision of the Japanese fishes of the family

Chung-Lyul Lee and Dong-Soo Joo

- Platycephalidae(the flatheads). Memoirs of the College of Agriculture, Kyoto University No. 68, pp.1-78.
- Nakabo, T. 1993. Fishes of Japan with pictorial keys to the species. Tokai University Press, pp. 535-539.
- Nelson, J. S. 1984. Fishes of the world. 2nd ed., John Wiley and Sons, New York, p. 264.
- (\* : did not cited directly)

### 한국산 *Rogadius*속(양태과) 어류 1 미기록종 *Rogadius asper*

이 충 열 · 주 동 수  
군산대학교 자연과학대학 생물학과

1993년 2월 부산에서 양태과 어류 중 체장이 120.2~168.6mm 되는 12개체를 수집하여 분류한 결과 지금까지 우리나라에서는 서식이 확인되지 않은 미기록종인 *Rogadius asper*로 동정되었다. 본 종의 외부 형태는 *Rogadius patriciae*와 흡사하나 전새개골 가시가 앞으로 크게 나 있고 후두부 윗선에는 거치상의 작은 돌기가 4개씩 나 있으며 그의 제1등지느러미와 꼬리지느러미의 무늬 등에서도 *R. asper*의 특징이 잘 나타나고 있다. 아울러 본 종을 한국명으로는 "바늘양태속", "바늘양태"라고 명명하였다.