

Antennarius commerson, a New Record of the Commerson's Frogfish (Lophiiformes: Antennariidae) from Korea

By Jung-Hyun An and Byung-Jik Kim^{1,*}

Department of Biological Resources Utilization, National Institute of Biological Resources, Incheon 22689, Republic of Korea

¹Department of Biological Resources Research, National Institute of Biological Resources, Incheon 22689, Republic of Korea

ABSTRACT Based on a single specimen (207.0 mm SL) collected from the southern coastal waters of Jeju Island, morphological characteristics of *Antennarius commerson* were described as the first reliable record from Korea. The species is characterized by having a globose body covered with small bifurcated spinules, three dorsal spines including a naked illicium and attached pectoral lobe, 13 dorsal fin soft rays, 8 anal fin rays, and 11 pectoral fin rays. We adopted a tentative Korean name previously suggested, "Keun-ssin-being-i", for the species.

Key words: *Antennarius commerson*, new Korean record, description, Jeju Island

INTRODUCTION

Frogfishes (Antennariidae), being small globose fishes with a peculiar and unique mode of feeding, *i.e.*, usage of a luring apparatus (illicium and esca) which is modified from the first dorsal spine (Pietsch, 1984; Pietsch and Grobecker, 1987), is distributed in tropical, subtropical, and temperate seas worldwide and composed of 13 genera with at least 47 species (Nelson *et al.*, 2016). From Korea, Mori and Uchida (1934) reported the first Korean frogfish, *Antennarius tridens* (Temminck and Schlegel, 1845) [= *A. striatus* (Shaw, 1794 in Shaw and Nodder (1789~1813))] from Busan in their revised catalogue of the fishes of Korea. At present, totally five species comprising *A. hispidus* (Bloch and Schneider, 1801), *A. pictus* (Shaw, 1794 in Shaw and Nodder (1789~1813)), *Antennatus striatus* (Gill, 1863), *Fowlerichthys scriptissimus* (Jordan, 1902), and *Histrio histrio* (Linnaeus, 1758) have been officially recognized (Kim *et al.*, 2005; Kim *et al.*, 2011a, b; Han *et al.*, 2017). Additional three species consisting of *A. commerson* (Anonymous, 1798), *A. maculatus* (Desjardins, 1840), and *A. tuberosus* (Cuvier, 1817) are likely to be in the southern coastal waters of Jeju Island, Korea, although

their records were based on underwater photographs only (Yoo *et al.*, 1995; Myoung *et al.*, 2002, 2015; Youn *et al.*, 2022). Unfortunately, any formal subsequent report of them based on scientific material has not been made to date.

During a recent field work on the exploitation of unrecorded fish species in the shallow waters of Korea, an interesting frogfish, *A. commerson* was found incidentally and collected from the southern coastal waters of Jeju Island. In the present study, we describe *A. commerson* as the first reliable record from Korea with a detailed description based on scientific specimen. Counts and measurements follow generally those of Pietsch (1984). Numbers of vertical fin rays and vertebrae were counted by a radiograph (Softex CMB-2, Japan). The specimen examined in this study is deposited in the fish collection of the National Institute of Biological Resources (NIBR-P), Korea as voucher.

TAXONOMIC ACCOUNTS

Antennarius commerson (Anonymous, 1798)

(New Korean name: Keun-ssin-beng-i)

(Fig. 1)

Lophis commerson Anonymous, 1798: 681 (type locality:

저자 직위: 안정현(전문연구원), 김병직(환경연구원)

*Corresponding author: Byung-Jik Kim Tel: 82-32-590-7475,

Fax: 82-32-590-7250, E-mail: kimbyungjik@gmail.com

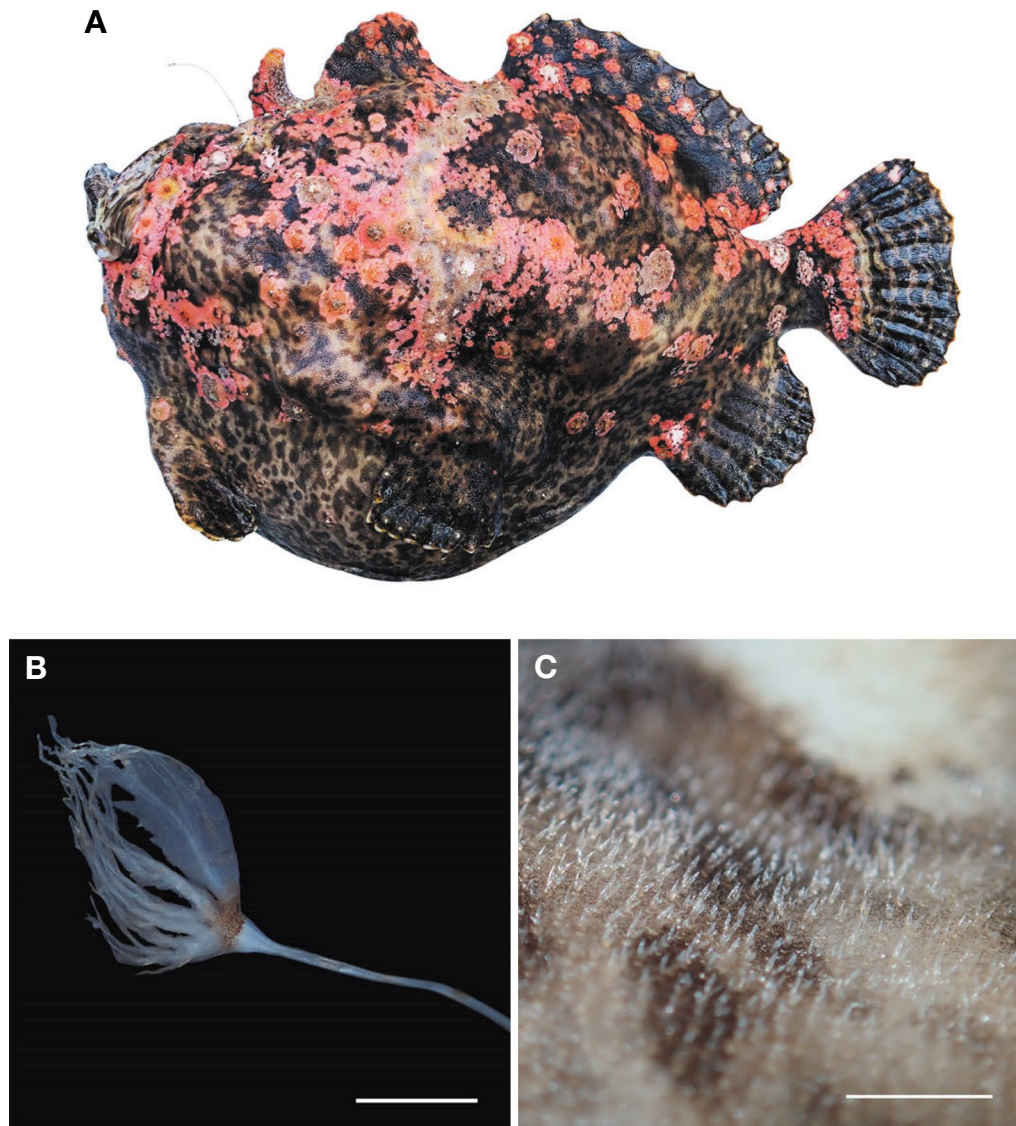


Fig. 1. Fresh specimen (A), esca (B), and bifurcated spinules (C) on body below dorsal fin of *Antennarius commerson* (NIBR-P0000080885, 207.0 mm SL) collected from the southern coastal waters of Jeju-do Island, Korea. Bars indicate 2 mm.

Mauritius, Mascarenes, southwestern Indian Ocean).

Antennarius commersoni: Pietsch, 1986: 366 (Red Sea and tropical Indo-West Pacific); Pietsch and Grobecker, 1987: 92 (Western Indian and Indo-Pacific including Red Sea).

Antennarius commerson: Randall, 2005: 300 (Hawaiian Islands, Papua New Guinea, Indonesia); Senou *et al.*, 2007: 49 (Ryukyu Islands, Japan); Mejía-Ladino *et al.*, 2007: 296 (Colombia); Motomura *et al.*, 2010: 78 (Kagoshima, southern Japan); Myoung *et al.*, 2015: 45 (Jeju-do Island, Korea); Youn *et al.*, 2022: 519 (Jeju-do Island, Korea).

Antennarius commerson (non Lacepède): Myoung and

Cho, 2021: 304 (Jeju, Korea, in part).

Material examined. NIBR-P0000080885, 207.0 mm in standard length (SL), off Beophwan-dong, Seogwipo-si, Jeju-do, Korea, about 20 m depth, 27 April, 2020, collected by Seung-Gu Ra, a plastic bag.

Diagnosis. A large *Antennarius* species with 3 dorsal fin rays including an anteriormost naked illicium with a small tuft of flattened short appendages, 13 second dorsal soft rays, 8 anal fin rays, and 11 pectoral fin rays.

Description. Dorsal fin soft rays 13, all unbranched; anal fin rays 8, all branched; pectoral fin rays 11; pelvic fin rays 5, first ray only bifurcate; caudal fin rays 4 + 4; vertebrae

18. Proportion of percentage in SL: head length 67.4; head width 27.1; head depth 59.8; snout length 12.7; eye diameter 2.2; interorbital width 16.6; maxillary length 22.2; snout to origin of 1st dorsal fin 10.7; snout to origin of second dorsal fin 22.2; snout to origin of pectoral fin 56.0; snout to origin of pelvic fin 49.2; snout to origin of anal fin 4.8; snout to anus 85.4; length of illicium 16.9; length of second dorsal fin spine 12.3; length of third dorsal fin spine 23.5.

Head and body globose and compressed with short distinct caudal peduncle. Eye very small, situated below origin of second dorsal spine. Mouth rather large, vertical, villiform teeth on both jaws, vomer, and palatines. Gill opening small under pectoral fin. First dorsal spine modified into a long slender rod (illicium), its length considerably longer than second dorsal spine; esca distinct, a small tuft of flattened short appendages (Fig. 1B); second dorsal fin slightly curved posteriorly; third dorsal fin curved posteriorly, with well-developed membrane, its base rather long and straight marginally. Pectoral fin broadly attached side of body. Pelvic fin thoracic, below mouth. Anal fin base short, its length about a half of basal length of second dorsal fin and round marginally. Caudal fin fan-like and rounded, all rays bifurcated. Body covered with loose skin with close-set bifurcated spinules extending onto fins (Fig. 1C).

Color when fresh. Head and body light yellowish brown mottled with many small dark brownish irregular specks. Eye with radiated light reddish bars. Many irregular light pinkish circular spots scattered on head, upper body, dorsal fins, bases of pectoral, pelvic, anal, and caudal fins. Illicium transparency with brown bands; esca whitish with dark brown base.

Color after preservation. Nearly same as when fresh, except for change from reddish color to beige or decoloration from dark brown to light brown.

Ecological notes. The present specimen was found and collected on rocky reef at a depth of about 20 m, and its abdomen was filled fully with seawater like puffer fishes when collected.

Distribution. Known from Western Indian and Indo-Pacific oceans, including Red Sea and extending into the tropical Eastern Pacific including southern Japan, Korea, Hawaiian Islands, Colombia (Pietsch, 1984, 1986; Pietsch and Grobecker, 1987; Senou *et al.*, 2007; Motomura *et al.*, 2010; present study). In the Korean waters, southern coastal waters of Jeju Island only at present (Myoung *et al.*, 2015; present study).

Remarks. According to Pietsch (1984), the genus *Antennarius* Daudin, 1816 is recognizable by the following characteristics: esca present; skin covered with close-set, bifurca-

ted dermal spinules; illicium naked, without dermal spinules; pectoral fin broadly attached to body side; all caudal rays bifurcated; dorsal fin with 11~14 rays; anal fin with 6~10 rays; pectoral fin with 8~14 rays. The present *Antennarius* specimen collected from the southern coastal waters of Jeju Island, Korea shows well accordance with the diagnostics of *Antennarius*, as mentioned above, by Pietsch (1984) and Pietsch and Grobecker (1987). Pietsch (1984) also recognized 24 species in his six species-group of *Antennarius*. Especially, *Antennarius pictus*-Group (*sensu* Pietsch, 1984) comprises totally five species of *A. pictus*, *A. commersoni* (= *A. commerson*), *A. multiocellatus* (Valenciennes in Cuvier and Valenciennes, 1837), *A. pardalis* (Valenciennes in Cuvier and Valenciennes, 1837), and *A. maculatus* (Desjardins, 1840). Their species composition above mentioned also supported by Arnorld and Pietsch (2012) based on a molecular approach.

Kim *et al.* (2011b) mentioned that three species of *A. commerson*, *A. maculatus*, and *A. pictus* were very similar morphologically and discriminated them by the number of fin rays referring to Pietsch and Grobecker (1987), in their taxonomical work that reporting *A. pictus* as the first record from Korea. In the present study, we also confirmed that *A. commerson* is differentiated from them by having the larger number of dorsal (13 for *A. commerson* vs. 12 for both *A. maculatus* and *A. pictus*), anal (8 vs. 7) and pectoral fin rays (11 vs. 10). Recently, Youn *et al.* (2022) included *A. commerson* in his list of the Korean frogfishes and presented description of the species. It, however, was not based on the Korean specimen but on literature with no citation (Youn, pers. comm.).

Because Myoung *et al.* (2015: 45) noted a tentative Korean name, “Keun-ssin-beng-i”, we adopted that name for the species instead of proposing a new Korean name or a replaced Korean name, although it is not based on scientific specimen, to promote stability of Korean name. Nevertheless, we like to stress that the proposal of a new Korean name should be conducted with great care on the basis of objective scientific materials.

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제주도 남부 연안해역에서 채집된 아귀목 씩뎡이과 한국 첫기록종, *Antennarius commerson*

안정현 · 김병직¹

국립생물자원관 생물자원활용부, ¹국립생물자원관 생물자원연구부

요 약 : 제주도 남부 연안 수심 20 m 부근 암초역에서 채집된 씩뎡이과 어류 1개체 (표준체장 207.0 mm)를 근거로 *Antennarius commerson*을 한국 첫기록종으로 보고한다. 본 종은 낚시대 (illicium)로 변형된 가늘고 긴 제1등지느러미가 제2등지느러미 가지보다 길고, 그 선단에 작은 다발 모양의 유인돌기 (esca)가 있는 점, 등지느러미, 뒷지느러미, 가슴지느러미 연조수가 각각 13개, 8개, 11개인 점에서 같은 속의 유사종인 ‘흑점박씩뎡이’와 쉽게 구별된다. 본 종의 한국명으로는 비록 수중사진으로 제안된 가칭이지만, ‘큰씩뎡이’를 채택한다.

찾아보기 낱말 : 큰씩뎡이, *Antennarius commerson*, 한국 첫기록종, 기재, 제주도