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First Record of Lumpsuckers, *Cyclopteropsis bergi* (Scorpaeniformes: Cyclopteridae) from East Sea

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ABSTRACT A single specimen of *Cyclopteropsis bergi*, belonging to Cyclopteridae, Scorpaeniformes, was newly collected from Sokcho, Korea in May 2011. *C. bergi* is characterized by tip of 1st dorsal fin spines visible, scattered bony tubercles on body, and head without bony tubercles. New Korean name of *Cyclopteropsis bergi* is proposed as "kko-ma-do-chi".

Key words : First record, *Cyclopteropsis bergi*, Cyclopteridae, the East Sea

INTRODUCTION

The lumpsuckers (Scorpaeniformes: Cyclopteridae) are distributed in cold waters of the northern hemisphere, and 28 species in 6 genera are recognized in worldwide (Nelson, 2006). Four species in 2 genera have been recognized in Korea, its distribution is the northern waters of the East sea (Kim *et al*., 2005): *Aptocyclus ventricosus* (Pallas, 1769), *Eumicrotremus asperrimus* (Tanaka, 1912), *Eumicrotremus orbis* (Günther, 1861) and *Eumicrotremus pacificus* Schmidt, 1904. In North Korea, 6 species in 4 genera have been recognized (Son, 1980), but they are estimated 4 species in 2 genera following the synonyms.

The lumpsuckers are characterized by head and body short, depth high, plump anteriorly and compressed posteriorly. Gill openings small, no scales, and having short two dorsal and one anal fins and large sucking disk which modified pelvic fin (Mecklenburg and Sheiko, 2003). In case of first dorsal fin, fin completely embedded in skin or projecting high above surface. Most of species have bony tubercles on head and body, and its distribution is important diagnostic characters (Mecklenburg and Sheiko, 2003). The genus *Cyclopteropsis* Soldatov and Popov, 1929 comprises 7 species in worldwide, and distributed in northwest Pacific, East Sea, and Okhotsk (Mecklenburg and Sheiko, 2003), but has been no reported in Korea.

In the present study, a single specimen of *Cyclopteropsis bergi* Popov, 1929 was collected from East Sea, Korea, and we described the species as the first record based on specimen. Counts and measurements followed Hubbs and Lagler (2004), the fin rays and vertebrae were counted from a radiograph (SOFTEX HA-100, Japan). The specimen is deposited in the National Institute of Biological Resources (NIBR-P), Korea.

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Cyclopteropsis Soldatov and Popov, 1929

(New Korean name: kko-ma-do-chi-sok)

Cyclopteropsis Soldatov and Popov, 1929: 240 (type species: *Cyclopteropsis bergi* Popov, 1929).

Cyclopterocottus Popov, 1930: 74 (type species: *Eumicrotremus brashnikowi* Schmidt, 1904).

Description. Body slightly compressed posteriorly, head large and round. Lower jaw located anterior tip of head. Interorbital space very broad and slightly convex. Gill opening small. Warts on head and body, and bony tubercles absent or on body only. First dorsal fin visible, projecting above skin. No barbels on chin. Pelvic fin modified to sucking disk (Popov, 1930; Nakabo, 2002).

Cyclopteropsis bergi Popov, 1929

(New Korean name: kko-ma-do-chi)

(Fig. 1; Table 1)

Cyclopteropsis bergi Popov in Soldatov and Popov, 1929: 240 (type locality: Okhotsk Sea, Russia); Popov, 1930: 73; Popov, 1931: 90; Nakabo, 2002: 662; Mecklenburg and Sheiko, 2003: 4.

Material examined. NIBR-P 16327, 1 specimen, 63.9

Fig. 1. *Cyclopteropsis bergi*, NIBR-P 16327, 63.9 mm SL.

mm in standard length (SL), 128° 41.77′E, 38° 09.37′N → 128° 40.52′E, 38° 10.64′N, off Sokcho, Korea, 139 m depth, 1.5°C, 33.8 psu, 23 May 2011.

Description. D. VI-10; A. 10; C. 11; P1. 29; Vert. 27 (Table 1). Proportion of standard length (%): body depth 62.6, head width 59.8, head length 42.9, postorbital length 17.4, snout length 16.0, upper jaw length 16.7, eye diameter 10.3, suborbital width 9.2, interorbital width 24.9, caudal peduncle length 8.1, caudal peduncle depth 10.2, pre-1st dorsal fin length 43.0, pre-2nd dorsal fin length 70.3, pre-pectoral fin length 46.2, pre-anal fin length 84.8, pre-disk length 39.0, pre-anus length 73.9, pectoral fin length 21.1, 1st dorsal fin length 3.9, 1st dorsal fin base length 23.3, 2nd dorsal fin length 16.7, 2nd dorsal fin base length 17.4, anal fin length 17.7, anal fin base length 16.9, disk width 30.7.

Body short, highly round, and caudal peduncle slender. Head large, and snout short very bluntly rounded. Mouth large, slightly curved, lower jaw projecting slightly beyond the upper jaw. No barbels on chin. Conical teeth on both jaws. Eye large, placed high on the head and interorbital space very broad. Nostrils two pairs, short tubular, and anterior nostrils longer than posterior nostrils. Gill opening small, located above pectoral fin base. Lateral line canals present. Bony tubercles and warts well developed, dorsal and lateral body scattered, but head without bony tubercles. Dorsal fins separated spiny first fin and soft second fin, and first dorsal fin very low, slightly visible on dorsal body. Pectoral fin large, posterior margin rounded. Sucking disk very large, round, located behind isthmus. Origin of second dorsal fin and anal fin in same vertical line. Caudal fin slightly round.

Coloration. When fresh, dorsal and lateral of the head and body are darkish brown, and whitish ventrally. Brownish small dots on the head and body except ventrally, and first dorsal fin. Second dorsal fin, pectoral fin, anal fin, and caudal fin are deep orange and translucence (Fig. 1). After fixation, dorsal of the head is grayish brown, and whitish ventrally. Second dorsal fin, pectoral fin, anal fin, and caudal fin are whitish yellow.

Table 1. Comparison of meristic characters of *Cyclopteropsis bergi*

	Present study	Popov (1931)	Nakabo (2002)
Number of specimens	1	–	–
Standard length (mm)	63.9	–	–
Dorsal fin rays	VI-10	VI ~ VII-12	VII-12
Anal fin rays	10	10 ~ 12	12
Caudal fin rays	11	10 ~ 11	10
Pectoral fin rays	29	26 ~ 30	26
Vertebrae	27	–	–

Distribution. *Cyclopteropsis bergi* was first collected in Sokcho, Gangwon-do (present study). It also occurs in Japan, Okhotsk Sea, and northern Bering Sea (Nakabo, 2002; Mechlenburg and Sheiko, 2003).

Remarks. The present specimen collected in Sokcho, Gangwon-do belongs to the genus *Cyclopteropsis* on the basis of first dorsal fin projecting above skin, bony tubercles on anterior part of body, and no barbels on chin (Popov, 1930). It was identified as *C. bergi* by warts and bony tubercles on body, and head without bony tubercles (Soldatov and Popov, 1929; Popov, 1931; Nakabo, 2002). The original description did not presented meristic characters, but it corresponds well in meristic characters except the number of second dorsal fin ray by Popov (1931). The number of second dorsal fin ray differences seem to be resulted from intraspecific variation, but is needed more specimens for clarification. When compared *Cyclopteropsis* with other genera within the family Cyclopteridae, *Cyclopteropsis* is clearly distinguishable from *Aptocyclus* in first dorsal fin projecting (projecting in

Cyclopteropsis vs. not projecting in *Aptocyclus*), from *Cyclopsis* and *Lethotremus* in warts on body (present in the former vs. absent in *Cyclopsis* and *Lethotremus*), from *Cyclopterus* in lateral line canals (present in the former vs. absent in *Cyclopterus*), and *Eumicrotremus* in bony tubercles on head (absent in the former vs. present in *Eumicrotremus*) (Popov, 1930, 1931; Nakabo, 2002). We propose a new Korean genus name "kko-ma-do-chi-sok" for the genus *Cyclopteropsis*, and the Korean name "kko-ma-do-chi" for *C. bergi*.

Meanwhile, Mecklenburg and Sheiko (2003) mentioned that *C. lindbergi* Soldatov in Soldatov and Lindberg 1930, belong to the same genus, differed from *C. bergi* in body with warts only, without bony tubercles (Nakabo, 2002), but *C. lindbergi* may be the junior synonym of *C. bergi*. Also, the distinction between *Cyclopteropsis* and *Eumicrotremus* is unclear (Mecklenburg and Sheiko, 2003). Therefore, further examination is needed such as the taxonomic review and phylogenetic relationships.

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동해에서 채집된 도치과(Cyclopteridae) 어류 1 미기록종, *Cyclopteropsis bergi*

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요 약 : 쏨뱅이목 도치과에 속하는 *Cyclopteropsis bergi* 1개체 (체장 63.9 mm)가 2011년 5월 속초에서 처음 채집되었다. *C. bergi*는 제1등지느러미 끝부분만 보이며, 골질돌기는 몸에만 산재해 있고 머리에는 없다. *Cyclopteropsis bergi*의 새로운 국명으로 “꼬마도치”를 제안한다.

찾아보기 낱말 : 미기록종, *Cyclopteropsis bergi*, 도치과, 동해