

New Record of the Sillaginid Fish, *Sillago parvisquamis* (Pisces: Sillaginidae) from Korea

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The taxonomic revision of the genus *Sillago* was made on the basis of the specimens collected in the Korean coasts during from June, 1990 to April, 1995. The family Sillaginidae of Korea are composed of 3 species in only one genus *Sillago*: *S. japonica*, *S. sihama*, and *S. parvisquamis*. Among them *S. parvisquamis* is newly recorded from Yosu of Korea by present study.

KEY WORDS: *Sillago parvisquamis*, Sillaginid Fish, New Record, Korea

The sillaginid fish has been regarded by most authors as one genus *Sillago*. Many authors (Mori, 1952; Chung, 1977; Kim and Kang, 1993) previously listed 2 species of the genus *Sillago* in Korea; they were *Sillago sihama* (Forsskål) 1775 and *S. japonica* Temminck et Schlegel 1842 respectively. However, there has been some taxonomic confusion between the two species. Many *Sillago* specimens collected from Korea have been identified as *S. sihama* according to key such as Jordan and Snyder (1902) and Chung (1977). But Korean specimens of the genus *Sillago* can't identified as *S. sihama* as pointed out by Sano and Mochizuki (1984).

In the course of the taxonomic study of the sillaginid fishes of Korea, Authors recognized *Sillago parvisquamis* Gill 1861, as unrecorded fishes from the Yosu, Korea.

The purpose of the present study is to report a *Sillago* specimen collected in this time as the first record of *S. parvisquamis* from Korea, and give a key to the 3 species of the genus *Sillago* from Korea.

Measuring and counting methods followed those used by Hubbs and Lagler (1964) with exception for the number of L-shaped haemal spines which

were followed Sano and Mochizuki (1984). Counts for vertebrae and L-shaped haemal spine were made from soft X-ray radiographs. The specimens used in this study are deposited in the Department of Biology, Chonbuk National University, Chonju, Korea (CNUC).

Family Sillaginidae 보리멸과

***Sillago parvisquamis* Gill, 1861 (Fig. 1a, and 2a; Table 1)**

(New Korean name: Chômborimyol, 점보리멸)

Sillago parvisquamis Gill, 1861: 505 (type locality: Kanagawa, Japan); Jordan and Snyder, 1902: 487; Matsubara, 1955: 647; Lindberg and Krasnyukova, 1969: 151; Chang and Chen, 1974: 35-26; Sano and Mochizuki, 1984: 141-143.

Material examined. CNUC 20104, one specimen, 166.6 mm SL, Namsan-dong, Yosu-shi, Chollanam-do, March 25, 1995.

Description. Counts and proportional measurements are shown in Table 1. Body elongate, slightly compressed, caudal peduncle narrow; ventral almost straight, body tapering from origin of first dorsal fin to snout tip and caudal fin base. Head elongate, snout long and pointed. Interorbital space flat. Mouth small,

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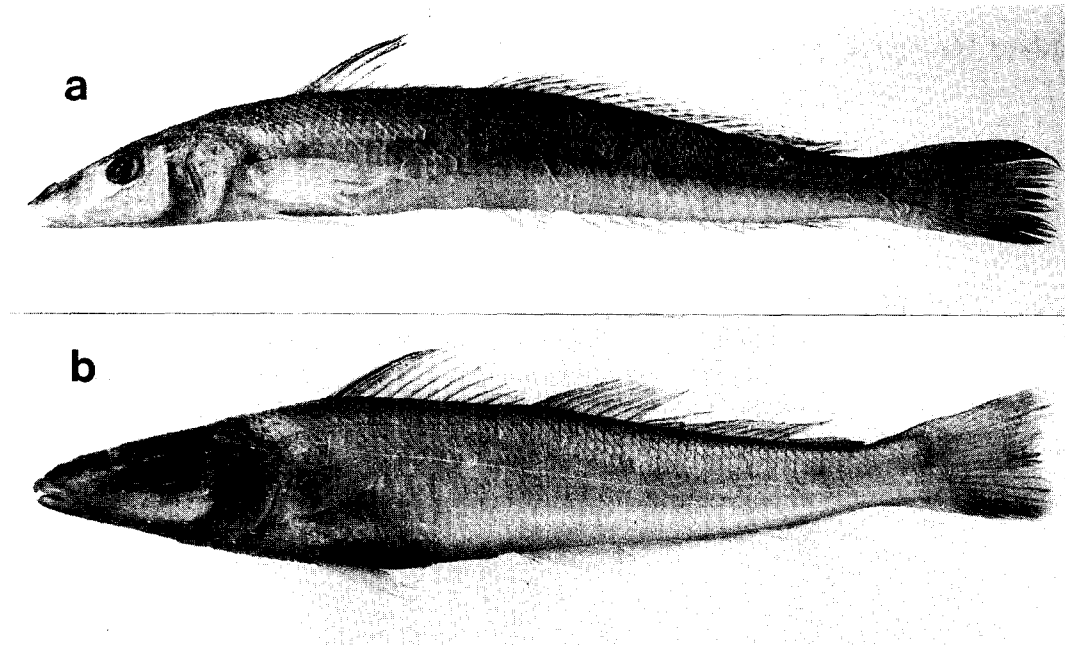


Fig. 1. (a) *Sillago parvisquamis*, CNUC 20104, 166.6 mm SL, Yôsu; (b) *S. japonica*, CNUC 20117, 114.0 mm SL, Namhae

terminal, somewhat oblique. Both jaws with broad bands of villiform teeth, those in the outer single row slightly larger and somewhat conical. Preopercle with a few broad, weak spines. Body covered with fine ctenoid scales; snout and anterior part of head ventral region with smooth; cheek with three or four rows of ctenoid scales, but sometimes with cycloid scales; Interorbital space with ctenoid. Lateral line complete, slightly curved in trunk and posteriorly running along middle of body to caudal fin base. Caudal fin slightly emarginate, upper lobe slightly longer than lower.

Color in formalin. Body grayish-brown dorsally, whitish-yellow ventrally. A faint grayish longitudinal band running on middle of body from cheek to caudal base. Second dorsal fin with blackish spots of 2-6 rows on membrane just in front of each ray. In fresh specimens, anal and pelvic fins bright yellow.

Distribution and Habitat. South Sea of Korea (Yosu), Pacific coasts of Japan (from Tokyo to the central part of Kyushu), Taiwan (Hsinchu).

Habitat of this species is the estuary zone near

large rivers where tidelands are well developed (Sano and Mochizuki, 1984), and shallow waters with sandy bottom (Chang and Chen, 1974).

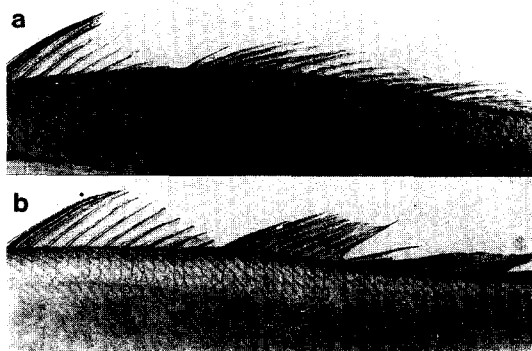
Discussion

The one specimen from Korea examined here was in agreement with the descriptions of *S. parvisquamis* by Gill (1861), Jordan and Snyder (1902) and Sano and Mochizuki (1984) from Japan, and Chang and Chen (1974) and Sano and Mochizuki (1984) from Taiwan, but differed in having 10 dorsal spine in the number (12 to 13 in Japanese and Taiwan specimens)(Table 1).

The family Sillaginidae of Korea are composed of 3 species in only one genus *Sillago*. Among them, *Sillago sihama* and *S. japonica* have been recorded as being widely distribution in Korean coastal waters by many authors (Mori and Uchida, 1934; Uchida and Yabe, 1939; Mori, 1952; Lindberg and Krasnyukova, 1969; Chyung 1977). But the authors no found *S. sihama* during collected of several localities and many specimens

Table 1. Counts and proportional measurements of *Sillago parvisquamis* from several authors

| Characters | Present study CNUC 20104 | Gill (1861) | Jordan & Snyder (1902) | Chang & Chen (1974) | Sano & Mochizuki (1984) |
|---------------------------------|-----------------------------|----------------|---------------------------|------------------------|----------------------------|
| Standard length (mm) | 166.6 | — | — | 123-168 | 141-313 |
| Number of specimens | 1 | — | — | 4 | 25 |
| Counts | | | | | |
| Dorsal fin rays | X,I 22 | XII,I 22 | XII,I 22 | XII-XIII,I 21-22 | XII-XIII,I 21-23 |
| Anal fin rays | II 23 | II 23 | II 23 | II 22-23 | II 22-24 |
| Lateral line scales | 79 | — | 82 | 80-81 | 78-82 |
| Transverse scales | 8/13 | — | 6/11 | 7/13 | 7-9/13-15 |
| Vertebrae | 38 | — | — | 39 | 38-39 |
| L-shaped heamal spines | 0 | — | — | — | 0-4 |
| Measurements in standard length | | | | | |
| Head length | 3.83 | — | 3.83 | 3.48-3.61 | 3.46-3.98 |
| Body depth | 8.01 | — | 5.67 | 6.08-6.22 | 5.28-7.42 |
| Predorsal length | 3.02 | — | — | 2.86-2.99 | 2.75-3.07 |
| Preanal length | 1.92 | — | — | 1.77-1.84 | 1.60-1.91 |
| Prepelvic length | 3.54 | — | — | — | 3.08-3.57 |
| Measurements in head length | | | | | |
| Snout length | 2.29 | — | 2.34 | 2.17-2.37 | 1.83-2.38 |
| Eye diameter | 6.40 | — | 5.50 | 5.83-6.48 | 5.29-7.67 |
| Interorbital space | 4.22 | — | 4.34 | 3.89-6.48 | 4.25-5.43 |
| Caudal peduncle depth | 3.99 | — | 4.00 | — | 4.04-4.93 |
| First dorsal spine length | 1.87 | — | — | — | 1.61-2.00 |
| First dorsal fin ray length | 2.75 | — | — | — | 2.33-2.93 |
| Second anal spine length | 5.00 | — | — | — | 4.09-5.31 |
| First anal fin ray length | 3.88 | — | — | — | 2.94-4.06 |
| Pectoral fin length | 1.36 | — | — | — | 1.59-1.91 |
| Pelvic fin length | 1.89 | — | — | — | 2.53-3.14 |

**Fig. 2.** Dorsal fin ray of *Sillago parvisquamis* (a) and *S. japonica* (b)

from Korea. But *S. japonica* is widely distributed from the all coast of Korea. *S. sihama* has been distinguished from *S. japonica* in having four or rarely five scales above lateral line (three scales in *S. japonica*) and cycloid scales on cheek and

interorbital space (ctenoid scales in *S. japonica*) by keys of Jordan and Snyder (1902), Matsubara (1955) and Chyung (1977). However, the following reasons lead us to the conclusion that their *S. sihama* is probably a misidentification of *S. japonica*: *S. sihama* has five or six scales above the lateral line, whereas *S. japonica* has three or four scales, as noted by Sano and Mochizuki (1984), Shen (1984), and Munro (1967). And it is possible that many authors noticed cycloid scales on cheek and interorbital space of *S. japonica*, but these areas are sometimes covered with both ctenoid and cycloid scales, as investigated by present study.

By the this criteria, specimens of *S. japonica* from Korea by the present study agree well with Japanese and Taiwan specimens by Temminck and Schlegel (1842), Jordan and Snyder (1902) and Sano and Mochizuki (1984) (Fig. 1b and 2b;

Table 2. Counts and proportional measurements of *Sillago japonica* from several authors

| Characters | Present study CNUC 20099-20130 | Temminck and Schlegel (1842) | Jordan & Snyder (1902) | Sano & Mochizuki (1984) |
|---------------------------------|-----------------------------------|---------------------------------|---------------------------|----------------------------|
| Standard length (mm) | 82.2-185.1 | - | - | 93-198 |
| Number of specimens | 31 | - | - | 38 |
| Counts | | | | |
| Dorsal fin rays | XI,I 21-23 | XI,I 22 | XI,I 22 | X-XIII,I 21-22 |
| Anal fin rays | II 22-23 | II 23 | II 23 | II 21-24 |
| Pectoral fin rays | 15-17 | 15 | - | 15-17 |
| Lateral line scales | 70-73 | - | 70 | 70-73 |
| Transverse scales | 3-4/10-11 | - | 3/11 | 3-4/11-12 |
| Vertebrae | 35 | - | - | 34-36 |
| L-shaped haemal spines | 7-9 | - | - | 7-9 |
| Measurements in standard length | | | | |
| Head length | 3.39-3.77 | - | 3.80 | 3.13-3.70 |
| Body depth | 5.06-6.51 | - | 6.50 | 5.14-7.15 |
| Predorsal length | 2.76-3.02 | - | - | 2.59-3.11 |
| Preanal length | 1.75-1.87 | - | - | 1.67-1.88 |
| Prepelvic length | 2.97-3.35 | - | - | 2.94-3.43 |
| Measurements in head length | | | | |
| Snout length | 2.17-2.60 | - | 2.50 | 2.25-2.67 |
| Eye diameter | 4.24-5.17 | - | 4.50 | 4.13-5.50 |
| Interorbital space | 3.88-4.54 | - | 4.50 | 4.36-5.80 |
| Caudal peduncle depth | 3.69-4.39 | - | 3.34 | 3.38-4.38 |
| First dorsal spine length | 1.67-2.23 | - | - | 1.77-2.38 |
| First dorsal fin ray length | 2.45-2.98 | - | - | 2.50-3.35 |
| Second anal spine length | 4.32-6.13 | - | - | 4.00-5.80 |
| First anal fin ray length | 2.84-4.34 | - | - | 2.85-3.84 |
| Pectoral fin length | 1.80-2.02 | - | - | 1.61-2.06 |
| Pelvic fin length | 1.78-2.26 | - | - | 2.61-3.80 |

Table 2).

Key to species of the genus *Sillago* from Korea

- 1a. Second dorsal with spotted in 2-6 rows, lateral line scales more than 78, scales above lateral line 7-9, total vertebrae 38-39.....
..... *S. parvisquamis*
- 1b. Second dorsal without spotted, lateral line scales 67-73, scales above lateral line 3-6, total vertebrae 33-36 2
- 2a. Scales above lateral line 3-4, total vertebrae 35, L-shaped haemal spines 6-9.....
..... *S. japonica*
- 2b. Scales above lateral line 5-6, total vertebrae 33-34, L-shaped haemal spines absent.....
..... *S. sihama*

Comparative materials. *Sillago japonica*; CNUC 20099-20103 (5), 99.2-142.5 mm SL, Munye Isl., Okdo-myŏn, Kunsan-shi, Chŏllabuk-do, June 7, 1990; CNUC 20105-20106 (2), 129.0-133.5 mm SL, Munye Isl., Okdo-myŏn, Kunsan-shi, Chŏllabuk-do, June 30, 1993; CNUC 20107-20110 (4), 147.0-166.2 mm SL, Toyang-up, Kohung-gun, Chŏllanam-do, June 2, 1992; CNUC 20111 (1), 168.3 mm SL, Namsan-dong, Yŏsu-shi, Chŏllanam-do, March 25, 1995; CNUC 20112-20115 (4), 61.7-92.3 mm SL, Mangduk, Chinwol-myŏn, Kwangyang-shi, Chŏllanam-do, Oct. 15, 1994; CNUC 20116-20118 (3), 112.5-119.2 mm SL, Mijo, Nam-myŏn, Namhae-gun, Kyŏngsangnam-do, Jul. 25, 1993; CNUC 20119 (1), 174.2 mm SL, Kŭmo Isl., Nam-myŏn, Yŏch'ŏn-gun, Chŏllanam-do, Jul. 5, 1993; CNUC 20120-20122 (3), 109.4-146.5 mm SL, Hallim-

ûp, Pukcheju-gun, Cheju-do, Apr. 13, 1991; CNUC 20123 (1), 144.6 mm SL, Kijang-up, Yangsan-gun, Kyongsangnam-do, Jan. 12, 1990; CNUC 20124 (1), 145.1 mm SL, Kijang-up, Yangsan-gun, Kyongsangnam-do, Jan. 15, 1992; CNUC 20125 (1), 144.2 mm SL, Yôngghae-myôn, Yôngdok-gun, Kyongsangbuk-do, Apr. 29, 1992; CNUC 20126-20130 (5), 180.0-185.1 mm SL, Tonghae-shi, Kangwon-do, Sep. 10, 1991.

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한국산 보리멸屬(보리멸科) 어류 1 미기록종, *Sillago parvisquamis* Gill
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1990년부터 1995년까지 우리나라의 전 연안에서 채집된 보리멸속 *Sillago* 어류의 표본을 검토한 결과 지금까지 국내에 출현한다고 보고된 보리멸과 청보리멸의 2종 외에 우리나라에서는 기록된 적이 없는 종인 점보리멸(국명신칭) *Sillago parvisquamis*가 1995년 3월 25일 여수에서 1개체(체장 166.6 mm) 채집되었다. 이 미기록종을 포함한 보리멸속 어류 3종의 검색표와 국내 출현 개체들의 측정치를 제시하고 분류학적으로 논의하였다. 한편 우리나라에 흔하게 출현한다고 알려진 보리멸은 알려진 것과 달리 본 연구에서는 1개체도 채집되지 않았다.