

# First Record of the Bothid Flounder *Arnoglossus polyspilus* (Bothidae, Pleuronectiformes) from Korea

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**ABSTRACT** A specimen of *Arnoglossus polyspilus* (Günther) (229.0 mm standard length) belonging to the family Bothidae, collect from the coastal waters of Jeju Island, represents the first record of the species from Korea. This species is characterized by having caudal fin with two simple rays on both upper and lower margins, several anterior dorsal fin rays somewhat elongated, upper jaw extending to below anterior 1/3 of lower eye, and one gill raker on the upper limb of the first gill arch. We add this species to the Korean fish fauna and propose its new Korean name, "No-rang-ban-jeom-ga-ja-mi".

**Key words** : Bothidae, *Arnoglossus polyspilus*, first record, Jeju Island, Korea

## INTRODUCTION

The genus *Arnoglossus*, belonging to the family Bothidae, is widely distributed in tropical and temperate waters of the world and usually they occur on sea bottom in depths less than 400 m (Fukui *et al.*, 1990). More than 37 species have been known worldwide (Amaoka and Mihara, 2000). They were characterized by having large mouth in size, much maxilla longer than eye diameter, and cycloid or feebly ctenoid scales on ocular side. Six species have been recorded from the coastal waters of Japan (Nakabo, 2002), of which only one species, *A. japonicus*, has been reported from Korea (Mori, 1952; Kim *et al.*, 2005).

Recently, one specimen of *A. polyspilus* was collected from the coastal waters of Jeju Island, Korea. We described its morphological characteristics based on a specimen and newly added it to the Korean fish fauna.

Counts and measurements followed Hubbs and Lagler (1964). The examined specimen was deposited at the Fish Genetics and Breeding Laboratory, Jeju National University (JNU), Korea.

*Arnoglossus polyspilus* (Günther), 1880  
(New Korean name: No-rang-ban-jeom-ga-ja-mi)  
(Fig. 1; Table 1)

*Anticitharus polyspilus* Günther, 1880: 48 (type locality: Kai Islands, Indonesia).

*Arnoglossus polyspilus*: Norman, 1927: 20 (India); Amaoka 1969: 191 (Japan); Amaoka in Masuda *et al.*, 1984: 350 (Japan); Okamura *et al.*, 1985: 611, 735 (Japan); Randall and Lim, 2000: 645 (South China Sea); Nakabo in Nakabo, 2002: 1369 (Japan).

**Material examined.** JNU 20040618, one specimen, 229.0 mm in standard length (SL), off Mara Island, Jeju Island, Korea, with long line, 18 June 2004.

**Description.** Counts for the present specimen are shown in Table 1.

Measurements are presented as percentage against SL: Body depth 40.4; body width 6.0; head length 24.0; upper jaw length 9.7; lower jaw length 8.5; eye diameter 6.0; snout length 5.4; predorsal fin length 3.3; prepectoral fin length 25.2; preanal fin length 25.3; preventral fin length 16.2; dorsal fin base length 98.2; anal fin base length 76.2; length of longest dorsal fin ray 10.1; length of longest pectoral fin ray 12.0; length of longest anal fin ray 10.3; caudal peduncle depth 9.4; straight lateral length 62.7; curved lateral length 17.5.

Body elliptical, its depth about two-fifths of SL; dorsal and anal contours evenly arched except for dorsal profile of head; dorsal fin starting on blind side, its origin in front of lower eye; anal fin starting below pectoral base; pectoral fin smaller on blind side than on ocular side; ventral fin base longer on ocular side than on blind side; caudal fin rounded, 2 simple rays on both upper and

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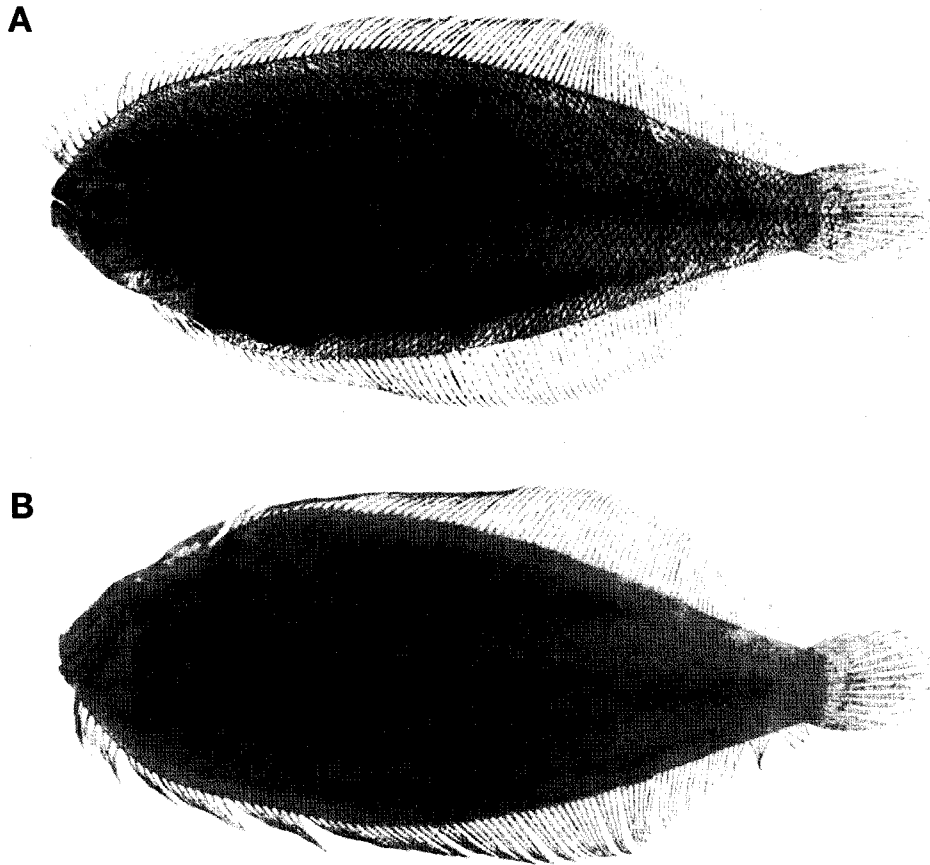


Fig. 1. *Arnoglossus polyspilus* (Günther), JNU 20060618, 229.0 mm SL, Jeju Island, Korea.



Fig. 2. Yellowish-green spots on ocular side including eyes of *Arnoglossus polyspilus*.

lower margins; lateral line on ocular side gently arched above pectoral fin but no lateral line on blind side; head rather small; snout length smaller than eye diameter; upper jaw extending to below anterior one-third of lower

eye; teeth in both jaws pointed, arranged in a single row; two nostrils existed on ocular side in front of upper margin of lower eye and the other two was on blind side below origin of dorsal fin; anterior nostril on ocular side tubular with flap and posterior one tubeless without flap; scales moderate and deciduous; both sides covered with ctenoid scales.

**Color when fresh.** Body uniformly light greenish brown; many yellowish-green spots on ocular site including around eyes (Fig. 2); body on blind side white except for part of abdominal cavity which stained with pale blue.

**Color in formalin.** Body uniformly light brown; all fins light brown with dusky spots; body on blind side white.

**Distribution.** Known from Indo-West Pacific Ocean: northwestern Australia to Indonesia, Taiwan (Hensley and Amaoka, 2001), South China Sea (Randall and Lim, 2000), Korea (Jeju Island, Present study), southern Japan and western Pacific (Okamura et al., 1985).

**Remarks.** The present specimen was characterized by having caudal fin with 2 simple rays on both upper and lower margins, several anterior dorsal fin rays somewhat elongated, upper jaw extending to below anterior one-third of lower eye, and 1 gill raker on the upper limb of

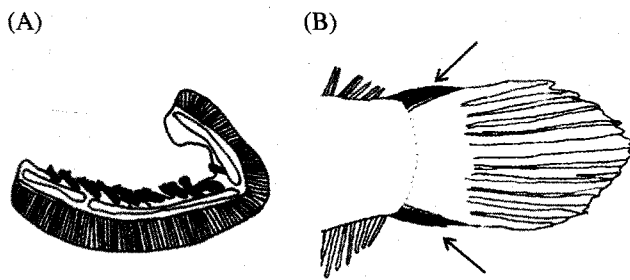


Fig. 3. First gill-arch on the ocular side (A) and caudal fin region (B) of *Arnoglossus polyspilus*. Arrows indicate simple rays on the upper and lower margins of caudal fin.

Table 1. Comparison of meristic characters of *Arnoglossus polyspilus*

Morphological characters	Present study	Norman* (1934)	Amaoka (1969)	Okamura <i>et al.</i> (1985)
Standard length (mm)	229.0 (n=1)	180~220 (n=2)	139.9~203.0 (n=29)	98.0~166.0 (n=3)
<b>Counts</b>				
Dorsal fin rays	110	103~106	100~114	100~103
Pectoral fin rays (ocular side)	13	11 or 12	11~13	12~13
Ventral fin rays	6	—	—	—
Anal fin rays	85	81~84	78~91	81~85
Caudal fin rays	17	—	—	—
Gill rakers	1+9	—	1~2+8~9	1+9
Lateral line	80	70~75	70~81	69

\*indicates syntype collected by Günther (1880).

Table 2. Comparison of gill rakers and simple rays on caudal fin margins of *Arnoglossus* species occurring Korean and Japanese waters

Species	Gill rakers	Simple rays on caudal fin margins	References
<i>A. polyspilus</i>	1~2+8~9	2	Amaoka (1969)
<i>A. japonicus</i>	0+7~9	3	Amaoka (1969)
<i>A. oxyrhynchus</i>	0+8~9	3	Amaoka (1969)
<i>A. macrolophus</i>	0+10~13	2	Arai and Amaoka (1996)
<i>A. tenuis</i>	0+8~9	3	Amaoka (1969)
<i>A. yamanakai</i>	0+7~10	3	Fukui <i>et al.</i> (1990)

the first gill arch (Fig. 3). Although the number of dorsal fin rays and lateral line of the present specimen show a little difference with those of the previous report (Norman, 1934; Okamura *et al.*, 1985), all counts of the present specimen coincide with those of Amaoka (1969) (Table 1). Amaoka (1969) also reported that this species has sexual dimorphism in the dorsal fin ray. That is, the anteriormost several dorsal rays are elongate in male, but scarcely ever elongate in female. When we consider such a sexual dimorphism, our specimen is most likely

to be female. On the other hand, *A. polyspilus* is easily distinguishable from other species of *Arnoglossus* distributed in the coastal waters of Korea and Japan by having 1 to 2 gill rakers on the upper limb of the first gill arch (vs. none in other species) and caudal fin with two simple rays both uppermost and lowermost (vs. three simple rays except for one) (Table 2).

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## 한국산 등글넙치과 어류 1미기록종, *Arnoglossus polyspilus*

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**요 약** : 등글넙치과에 속하는 *Arnoglossus polyspilus* 1개체 (표준 체장 229.0 mm)가 제주도 주변 해역에서 처음으로 채집되었다. 본 종은 꼬리지느러미 상엽과 하엽에 두 개의 작은 연조가 있으며, 등지느러미 앞부분의 연조는 약간 연장되었다. 위턱은 전체 길이의 좌측 눈 아래 1/3 앞까지 도달하고, 첫 번째 새궁의 상지에는 1개의 새파를 갖는다. 본 종의 신한국명을 “노랑반점가자미”라고 명명하였다.

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**찾아보기 낱말** : 등글넙치과, 노랑반점가자미, 미기록종, 제주도