

First Record of the Doublespotted Queenfish, *Scomberoides lysan* (Perciformes: Carangidae) from Korea

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ABSTRACT This is the first report of *Scomberoides lysan* (Perciformes: Carangidae) from Korea. Two specimens (334 and 354 mm standard length) were collected by a set net from the coastal waters of Jeju Island on 30 September, 2010. This species is characterized and distinguishable from a morphologically similar *Scomberoides tol* as follows. It has the posterior end of maxilla reaching to the posterior margin of eye (vs. not reaching in *S. tol*) and two rows of 5~8 small blotches on both sides of body (vs. one row of blotches). We add *S. lysan* to the Korean fish fauna and propose a new Korean name, "Du-jeom-jul-ga-si-jeon-gaeng-i" for the species because it has two series of dusk blotches on both sides of body.

Key words: *Scomberoides lysan*, Carangidae, first record, Jeju Island, Korea

INTRODUCTION

The family Carangidae comprises about 147 species in 30 genera of four subfamilies worldwide (Nelson, 2016). All members of Carangidae have two dorsal fins, anal fin with two anterior spines, scutes present and prominent, or reduced in some species and absent in some genera (Smith-Vaniz, 1999; Nelson, 2016). Fifty-nine species in 24 genera have been reported from Japan (Senou, 2013) and 35 species in 18 genera from Korea so far (MABIK, 2017; Kim *et al.*, 2018a).

The genus *Scomberoides* Lacepède, 1801 is characterized by the posterior soft dorsal and anal fin rays consisting of semi-detached filets, distal quarter to half of rays not connected by interrational membrane (unattached portion of rays increasing with growth); upper lip joined to snout at midline by a bridge of skin (frenum), except crossed by a shallow groove in very young (Gushiken, 1983; Smith-Vaniz, 1999). Four species have been reported in this genus worldwide (Froese and Pauly, 2017) and one

species from Korea (Kim *et al.*, 2018b).

During the fish survey using a set net, we collected two specimens of unrecorded *Scomberoides* species belonging to the subfamily Scomberoidinae of Carangidae from the southern coastal waters of Jeju Island, Korea. The specimens were identified as *Scomberoides lysan* according to the method of Senou (2013). We here describe the morphological characters of *S. lysan* and add the species to the list of Korean fishes.

Counts and measurements followed the method of Hubbs and Lagler (1964) and Gushiken (1983). The examined specimens were deposited at the Fish Genetics and Breeding Laboratory, Jeju National University (JNU), Korea.

Scomberoides lysan (Forsskål, 1775)

(New Korean name: Du-jeom-jul-ga-si-jeon-gaeng-i)
(Fig. 1; Table 1)

Scomber lysan Forsskål, 1775: 54 (type locality: Red Sea).
Scomberoides lysan: Gushiken, 1984: 153 (Japan); Smith-Vaniz, 1986: 655 (southern Africa); Winterbottom *et al.*, 1989: 34 (Chagos Archipelago); Gunñ, 1990: 44 (Australia), Talwar and Jhingran, 1991: 825 (India); Randall, 1995: 185 (Oman); Mohsin *et al.*, 1996: (Malaysia); Lin

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Fig. 1. *Scomberoides lysan*, JNU0057-1, 334.0 mm SL, Jeju Island, Korea.

Table 1. Comparison of morphological characters between present and previous studies on *Scomberoides lysan*

Meristic characters	Present study	Forsskål (1775)	Gushiken (1983)*	Gunn (1990)
No. of specimens	2	1	12	38
Fork length (mm)	370, 386	–	–	35~411
Standard length (mm)	334, 354	–	106~339	–
Counts				
Dorsal fin rays	VII + I, 20	VII + I, 21	VII + I, 20~21	VI~VII + I, 19~21
Pectoral fin rays	i, 17	17	i, 17~18	–
Anal fin rays	II + I, 18~19	II + I, 19	II + I, 18	II + I, 17~19
Pelvic fin rays	I, 5	–	I, 5	I, 5
Caudal fin rays	16~17	–	–	–
Gill rakers	7 + 17	–	7~8 + 17~18	5~8 + 15~18
In % standard length				
Body depth	26.2, 27.2	–	27.5, 29.2	–
Head length	20.9, 21.0	–	20.7, 21.4	–

*Measurements were based on two specimens (193 and 215 mm SL).

and Shao, 1999: 64 (Taiwan); Myers, 1999: 142 (Micronesia); Randall and Lim, 2000: 616 (South China Sea); Randall, 2007: 237 (Hawaii).

Material. JNU0057-1~2, two specimens, 334 and 354 mm in standard length (SL), Daepo-dong, Seogwipo city, Jeju Island, Korea, set net, 30 September, 2010.

Description. Meristic and morphometric characters for the present specimens appear in Table 1.

Measurements as a percentage against SL are as follows: body width, 10.1~11.3; upper jaw length, 10.6; snout length, 6.1~6.3; eye diameter, 3.3~3.5; interorbital width, 6.8; second predorsal fin, 49.4~49.7; prepectoral fin length, 22.3~22.5; preanal fin length, 47.9~50.3; length of longest dorsal fin ray, 9.9~10.7; pectoral fin length, 10.9~11.7; length of longest anal fin ray, 8.8~9.6; caudal peduncle length, 3.3~3.5; caudal peduncle depth, 4.9~5.0.

Body elongated to elliptical and strongly compressed;

dorsal and ventral profile nearly equal, slightly concave on dorsal profile of head; snout pointed, upper jaw extended to below posterior margin of eye; orbit diameter smaller than snout length; upper jaw with an outer row of small conical teeth and an inner band of fine teeth; lower jaw with two rows of subequal conical teeth; lateral line only slightly irregular, weakly to moderately convex above pectoral fins becoming straight posteriorly; soft dorsal and soft anal fins low, its anterior part only slightly falcate; posterior soft dorsal and anal rays consisting of semidetached finlets, last one elongated, base of anal and second dorsal fins about equal in length; pectoral fin short, almost equal to pelvic fin; scales on mid-body below lateral line partially embedded and sharply lanceolate; no scute and groove on caudal peduncle; deeply fork caudal fin.

Coloration. When fresh, head and body grey-green above, silver gray to midline, silver white below; two series of dusk blotches on both sides of body (six blotches above

and five blotches below lateral line, respectively); dorsal soft fin dark black with the base of anterior margin white; anal soft fin white with anterior margin black blotch; pectoral fin black; ventral fin white with margin small black blotch; upper lobe of caudal fin and lower lobe dusky black. After fixation in formalin, grayish midline above and light below; two series of dark blotches on side faint; dorsal, pectoral and caudal fin dark brown; ventral and anal fin pale brown.

Distribution. Known from subtropical and temperate waters in Indo-Pacific Ocean: South Africa Sea, Red Sea to Australia, India, Malaysia, Taiwan, China, Japan to Hawaiian Islands (Smith-Vaniz and Staiger, 1973; Smith-Vaniz, 1999), and Korea (Jejudo Island, present study).

Remarks. The present specimens, belonging to the family Carangidae, are characterized by having body elongate, soft dorsal and soft anal fins with semi-detached finlets posteriorly, scales needle-like to lanceolate, two rows of black blotches on body side and upper jaw extended to below the posterior margin of eye. The morphological characteristics of present specimens were compared with those in the previous reports of *Scomberoides* species (Gunñ, 1990; Smith-Vaniz, 1999; Senou, 2013), which revealed that all morphological traits examined were well matched with those of *S. lysan* (Table 1). Thus, we identified our specimens to be *S. lysan* based on the morphological characters.

This species morphologically resembles *Scomberoides tol* (Cuvier, 1832) inhabiting the Korean water, but it is distinguishable from the latter by having the posterior end of maxilla reaching the posterior margin of eye (vs. not reaching in the latter) and two rows of 5~8 small blotches on both sides of body (vs. one row of blotches) (Gunñ, 1990; Senou, 2013). We suggest its new Korean name, “Du-jeom-jul-ga-si-jeon-gaeng-i” for species since it has two rows of small blotches on the body.

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한국산 전갱이과 어류 1 미기록종, *Scomberoides lysan*

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요 약 : 농어목 전갱이과에 속하는 *Scomberoides lysan* 2개체 (표준체장 334, 354 mm)가 2010년 9월 제주도 서귀포시 대포동의 정치망에서 처음으로 채집되었다. 이 종은 최근 우리나라에 보고된 가시전갱이(*S. tol*)와 형태적으로 유사하지만 주둥이 뒤쪽 끝이 눈의 말단에 이르며, 체측에 5~8개의 작은 검은색 반점들이 두 줄로 나열되는 특징을 갖는다. 따라서 체측에 두 줄의 작은 반점을 가지는 형태적 특징에 근거해서 이 미기록종의 국명을 “두점줄 가시전갱이”로 제안한다.

찾아보기 낱말 : 전갱이과, *Scomberoides lysan*, 두점줄가시전갱이, 미기록종, 제주도