

## New Record of the Two Carangid Fishes (Perciformes, Carangidae) from Korea

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Two specimens of *Decapterus macrosoma* Bleeker and *Carangoides orthogrammus* (Jordan et Gilbert) were collected separately from the south-eastern sea of Cheju island and Cheju fish market in September, 1998. We named "Gin-ga-ra-ji" for *D. macrosoma* and "No-rang-jeom-muni-yu-jeon-gaeng-i" for *C. orthogrammus* since they are first recorded in the Korean waters. *D. macrosoma* shows some differences like the extent of scales on its dorsal head, the number of scutes, the shape of lateral line, and the length of pectoral fin in comparison of those of same genus. *C. orthogrammus* is characterized in having high body depth, scutes located on the straight lateral line, a few number of the yellow spot on the side of body, elongated ray on the front end of 2nd dorsal and anal fin, and the area of no scales in the base of breast.

**Key words :** *Decapterus macrosoma*, *Carangoides orthogrammus*, scutes, Carangidae

### Introduction

About 32 genera and 140 species of the family Carangidae were recognized in the world (Gushiken 1983; Smith-Vaniz, 1984; Nelson, 1994), in which 7 species belonging to the genus *Decapterus* and 12 species of the genus *Carangoides* were recorded in Japan (Gushiken, 1983; Nakabo, 1993). In Korea, the genus *Decapterus* represents *D. muroadsi*, *D. maruadsi*, *D. akaadsi* (not publ.) and *D. tabl* and the genus *Carangoides* has *C. uii*.

Since Oshima (1925) had studied the genus *Decapterus* for the first time, Suzuki (1962) redescribed anatomical and taxonomical studies on the carangid fishes of Japan. Thereafter Kimura and Suzuki (1981) described the genus *Decapterus* by their taxonomical consideration and Gushiken (1983) revised the carangid fishes of Japan. *Carangoides* species from Japan were studied by Suzuki (1962) and Gushiken (1983). But, little works have been done in Korea. The

purpose of the study is to provide the basic information for the taxonomic outline of the family Carangidae from Korea.

### Materials and Methods

*Decapterus macrosoma* was collected with the aid of the research vessel of NFRDI (National Fisheries Research and Development Institute) at the south-eastern sea of Cheju island on September, 1998, and *Carangoides orthogrammus* was obtained at the fish market named as Mae-il fish market in Seogwipo city, Cheju island on September, 1998. Counts and measurements follow Gushiken (1983). The examined specimens were deposited in Taxonomical Laboratory, Coastal & Offshore Resources Division, NFRDI.

### Family Carangidae

#### Genus *Decapterus* Bleeker, 1851

(Korean name : Ga-ra-ji-sog)

*Decapterus* Bleeker, 1851: 358 (type species :

*Caranx kurra* Cuvier in Cuvier and Valenciennes, 1833=*Caranx russelli* Rüppell, 1830)

Body elongate and oblong. Breast scaly. Scutes well developed from straight lateral line. Adipose fully covered eye except the slit at the center of pupil. Dorsal fin and anal fin with a single rayed finlet. The number of soft ray in the second dorsal fin 27 to 37 and anal fin 20 to 30 (Gushiken, 1983).

***Decapterus macrosoma* Bleeker, 1851**

(Fig. 1)

(New Korean name: Gin-ga-ra-ji)

*Decapterus macrosoma* Bleeker, 1851: 358. (Java); Norman, 1935: 262 (Indonesia); Gushiken, 1983: 175 (Japan); Nakabo, 1993: 694 (Japan).

*Decapterus lajang* (Bleeker): Wakiya, 1924: 155, pl. 27, fig. 1 (Japan); Nichols, 1942: 4 (Indone-

sia); Smith, 1949: 220 (South Africa); Suzuki, 1962: 218 (Japan).

**Material:** NFRDI 2193, one specimen, 197.3 mm SL, Cheju island, September, 1998.

**Description:** D. VIII-I, 35; A. II-I, 28; P. 20; one rayed finlet on dorsal and anal part each; GR. 11+32. Counts and proportional measurements are shown in Table 1.

Projected slim body shape and low body depth. Scales on the interorbital region absent (Fig. 2, A). Snout pointed, the lower jaw slightly project. A single series of minute teeth on lower jaw, but upper jaw toothless. Hind margin of maxilla extending to the anterior rim of eye. Opercular membrane smooth. Lateral line slightly curved, arched part longer than straight one (Fig. 3, D). Pectoral fin short, reaching below to the 6th spine of dorsal fin.

**Color:** Dorsal bluish green, ventral silvery.

Fig. 1. *Decapterus macrosoma* Bleeker, NFRDI 2193, 197.3 mm SL.

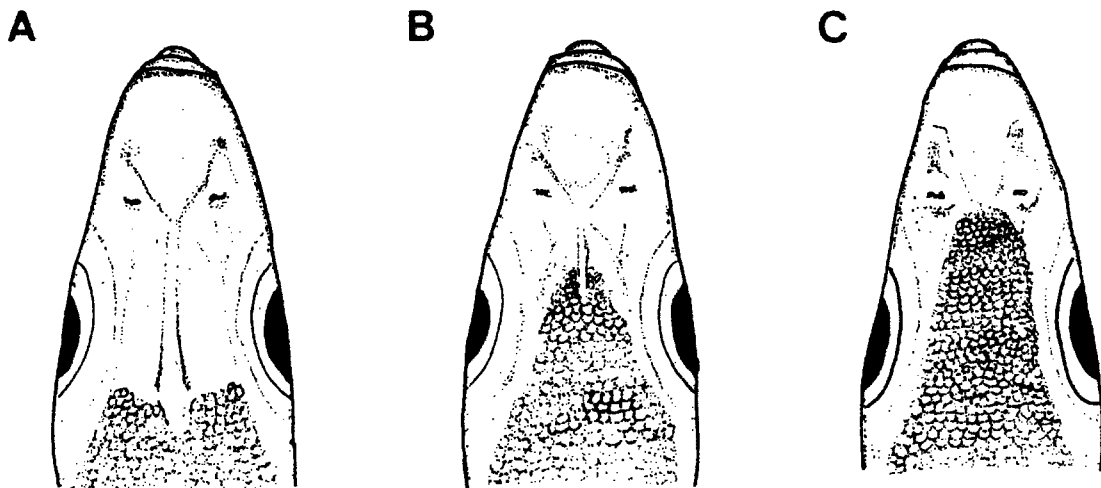
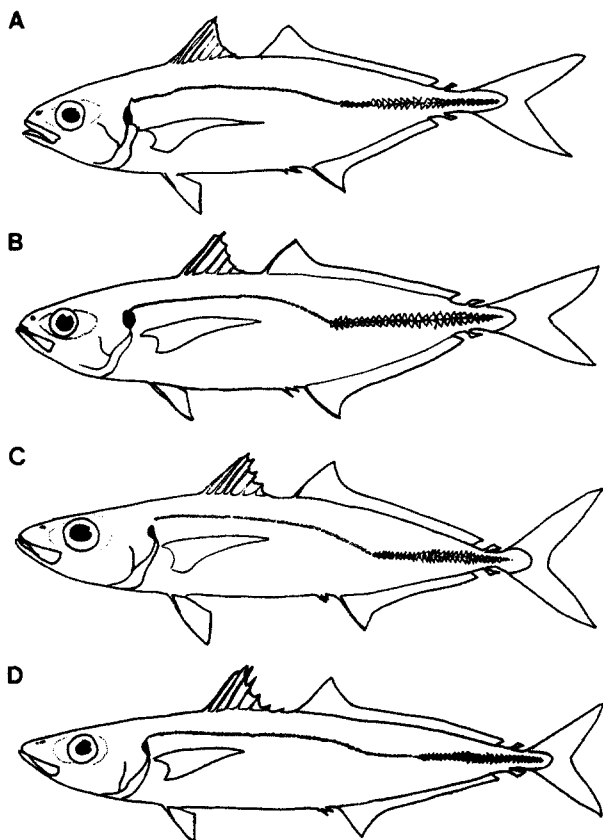


Fig. 2. The extent of scales on the head. A. *D. macrosoma* 197.3 mm SL (the present study), B. *D. tabl* 180.4 mm SL (by Kim and Koh, 1994), C. *D. akaadsi* 177.2 mm SL (by Kim *et al.*, not publ.).

**Table 1.** Counts and proportional measurements of *Decapterus macrosoma*

Characters	Present study	Kimura & Suzuki (1981)		Gushiken (1983)	
		<i>D. lajang</i>	<i>D. macrosoma</i>	<i>D. macarellus</i>	<i>D. macrosoma</i>
<b>Counts</b>					
Dorsal fin rays	35	33~37	32~36	32~34	34~37
Anal fin rays	28	27~30	27~30	27~29	27~30
Scutes	31	27~36	25~35	26~28	28~30
Gillrakers	34	34~38	36~41	38~41	34~38
<b>Measurements</b>					
SL (mm)	197.3	145~265	190~325	233~268	219~414
BD/SL	5.2	4.9~5.9	5.4~5.5	5.1~5.2	5.4~5.9
HL/SL	4.1	—	—	—	3.8~3.9
ED/HL	4.8	—	—	—	4.3
PFL/HL	1.6	—	—	1.4~1.5	1.5~1.6

Abbreviations : SL, Standard length; BD, Body depth; HL, Head length; ED, Eye diameter; PFL, Pectoral fin length



**Fig. 3.** Diagram showing the shape of lateral lines of 4 species in the genus *Decapterus*. A. *D. akaadsi* (by Kim *et al.*, not publ.), B. *D. maruadsi* (by Gushiken, 1983), C. *D. tabl* (by Kim and Koh, 1994), D. *D. macrosoma* (the present study).

Posto-dorsal part of operculum with black spot. Dorsal, pectoral, and caudal fins pale. Anal and ventral fins white.

**Distribution:** Widely distributed in the tropical and temperate waters of Pacific ocean including the south-eastern waters of Korea.

**Remarks:** Since this species was originally recorded as *Decapterus macrosoma* by Bleeker (1851), Wakiya (1924) made *D. lajang* as a new species in Japan. However, *D. lajang* of Wakiya (1924) had been revealed as a junior synonym of *D. macrosoma* when Norman (1935) compared the holotype of *D. macrosoma* with *D. lajang*. The present species differs from *D. macarellus* by having prevomerin teeth and a narrow band on its shaft like *D. maruadsi*.

#### **Genus *Carangoides* Bleeker, 1851**

(New Korean Name: Yu-jeon-gaeng-i-sog)

*Olistus* Cuvier, 1829: 209 (type species: *Olistus malabaricus* Cuvier, 1833=*Olistus hedlandensis* Whitley, 1934)

*Carangoides* Bleeker, 1851: 352 (type species: *Caranx praeustus* Bennett, 1840)

Body oblong or ovate, strongly compressed. Breast partly or widely naked. Scutes relatively small and present on the straight region of lateral line. A few lines of the minute teeth on the upper and lower jaw. The front end of ray in dorsal and anal fin elongated. No finlet. The number of soft ray in the second dorsal fin 19 to 33 and anal fin 16 to 27 (Gushiken, 1983).

#### ***Carangoides orthogrammus***

(Jordan et Gillbert), 1882

(Fig. 4)

(New Korean name: No-rang-jeom-muni-yu-jeon-gaeng-i)

**Fig. 4.** *Carangoides orthogrammus*, Jordan et Gilbert, NFRDI 2194, 264.5 mm SL.

*Caranx orthogrammus* Jordan et Gillbert, 1882: 226 (Revillagigedo Is., E. Pacific).

*Carangoides orthogrammus*: Jordan et Evermann, 1896: 928 (Revillagigedo Is.); Gushiken, 1983: 230, fig. 55 (Japan); Nakabo, 1993: 703 (Japan); Allen and Robertson, 1994: 125, pl. VIII-8 (E. Pacific).

*Carangoides jordani* Nichols, 1922: 2 (Hawaii); Suzuki, 1962: 194, fig. 59 (Japan).

*Carangoides nitiuds* Smith, 1972: 236, pl. 44 (S. Africa).

**Material:** NFRDI 2194, one specimen, 264.5 mm SL, Seogwipo, Cheju, September, 1998.

**Description:** D. VIII-I, 31; P. 24; A. II-I, 27; Scute 30; GR. 9+22. Proportional measurements are showed in Table 2.

Body oval and compressed. The dorsal aspect of head more convex than ventral. In the rear of eyes, almost no adipose eyelid, but a little bit developed in the front of them. Maxilla reaching below to anterior border of eye. The minute teeth on the upper and lower jaw, prevomer and tongue. Rear side of opercle smooth. Lateral line becoming straight below 12th ray of the second dorsal fin. The curved part on lateral line slightly longer than or equal to straight part. Scutes on the stright lateral line below 24th ray of second dorsal fin. Caudal peduncle having small keel on each side. The third to fourth dorsal spine longer than the others. The first ray in second dorsal and anal fin elongated and falcate.

Pectoral fin with very long upper rays reaching to the straight lateral line. Scales tiny cycloid. No scales on snout, jaws, the below part of preopercle and opercle, dorsal of head, and the region of pre-dorsal and pre-ventral fins (Fig. 5). Two nostrils together and the posterior nostril larger than the anterior.

**Color:** Light bluish in the side of dorsal part, silvery in the side of below part. A few yellow spots with black center above or below lateral line. The front part of second dorsal fin and anal fin bluish gray, becoming yellow posteriorly. Pectoral fin pale. Although ventral fin wholly white, the front and outside of it a little dark. Caudal fin bluish gray and its posterior margin dark.

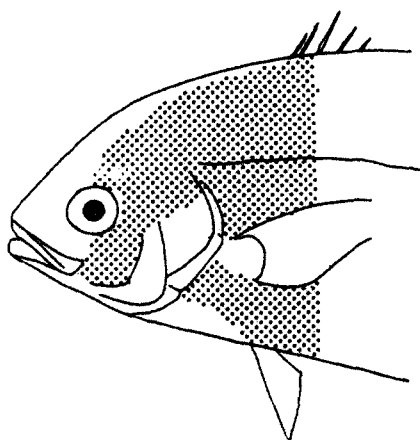
**Distribution:** Widely distributed in tropical and subtropical waters of Indo-Pacific ocean including Cheju island of Korea.

**Remarks:** It is not sure for the taxonomical level of the genus *Carangoides*. For the first time, Smith-Vaniz *et al.* (1979) suggested that the use of the genus *Carangoides* was better than that of the genus *Olistus*, although the genus *Olistus* was thought to be a senior generic synonym of the genus *Carangoides*. Thereafter, Gushiken (1983), Nakabo (1993), Nelson (1994) considered that the genus *Carangoides* is appropriated. Although the genus *Carangoides* is similar to the genus *Caranx* in the view of external shape, there is a distinct difference like that the former has no adipose eyelid but the latter has

**Table 2.** Comparison of proportional measurements of *C. orthogrammus* (Jordan et Gilbert)

	Present study	Suzuki (1962)	Jordan et Gilbert (1882)	Gushiken (1983)
Number of specimen	1	2	1	6
Standard length (mm)	264.5	241.0~250.0	406.0	165.0~235.0
BD/SL	2.39	2.47~2.50	3.66	2.56~2.65
HL/SL	3.55	3.49~3.55	—	3.33~3.41
SnL/HL	3.21	3.00	—	3.07~3.28
ED/HL	5.14	4.06~4.32	4.66	4.01~4.03
UJL/HL	2.46	2.42~2.56	2.33	2.48~2.54
IW/HL	2.87	2.92~3.07	—	3.10~3.14
PFL/HL	0.83	0.82~0.88	0.91	0.84~0.88
VF/HL	2.19	2.18~2.34	—	2.18~2.25
SUBW/ED	1.45	—	—	2.28~2.48

Abbreviations: SL, Standard length; BD, Body depth; HL, Head length; ED, Eye diameter; PFL, Pectoral fin length; SnL, Snout length; UJL, Upper jaw length; IW, Interorbital width; VF, Ventral fin length; SUBW, Suborbital width



**Fig. 5.** Dotted area represents the extent of scales in head and breast in *C. orthogrammus*.

it.

Chyung (1977) recorded only one species *Caranx uii* which was redescribed as *Carangoides uii* by Kim and Kang (1993), who provided its color of picture, shape, and distribution based on the specimens collected in Pusan and Kohung. *C. orthogrammus* differs from *C. uii* in the body depth (higher in *C. uii*), the number of dorsal fin rays (21~23) and anal fin rays (18~19) and gill rakers (5~7+15~18). We named it "No-rang-jeom-muni-yu-jeon-gaeng-i" since this species has a little distinct yellow spots in the side of body.

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### 한국산 전갱이과 어류 2 미기록종

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1998년 9월에 제주도 남동부 해역과 제주도 서귀포의 매일 어시장에서 *Decapterus macrosoma* 1개체와 *Carangoides orthogrammus* 1개체가 채집되었기에 이를 보고한다. 한국에서는 처음으로 보고되는 *D. macrosoma*를 “긴가라지”로, *C. orthogrammus*를 “노랑점무늬전갱이”로 명명한다. *D. macrosoma*는 머리 등쪽 비늘의 분포, 모비늘수, 측선의 형태, 가슴지느러미 길이에 서, *C. orthogrammus*는 체고가 높고, 모비늘이 측선이 일직선으로 되는 부위에 나타나며, 체측에 3~5개의 선명한 노랑색 점이 있고, 제2등지느러미 및 뒷지느러미의 앞쪽 연조가 낫모양을 하고 있으며, 가슴 부위에 무린역을 가지는 특징으로 이들 유사종들과 잘 구별된다.