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A New Record of the Carangid Fish, *Decapterus akaadsi* (Pisces, Carangidae) from Korea

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Two specimens of the carangid fish *Decapterus akaadsi* Abe were collected for the first time in Busan, Korea. It is differentiated from the other three species of *Decapterus* by the number of rays in the dorsal and anal fins, gill rakers, scutes, and extent of predorsal scale. These specimens represent the first record of *Decapterus akaadsi* from Korea. A new Korean name 'Bulkeon karagi' is proposed for this species.

Key words : Taxonomy, carangidae, Korea

Introduction

The family Carangidae belongs to the order Perciformes, which includes a large number of tropical and temperate marine waters of the world. In these day, 140 species were described by Nelson (1994) and Laroche *et al.* (1984) in the world.

Decapterus akaadsi was firstly established by Oshima in 1925 with the type species *Decapterus kurroides* and after Kimura and Suzuki (1981) researched the taxonomical consideration on Japanese carangid fishes of the genus *Decapterus* Bleeker and 54 species in Japan were recognized as carangid fish by Nakabo (1993) in Japan.

But in Korea only 22 species of the carangid fishes were described by Korean society of systematic zoology (1997). And then Kim and Koh (1994) added one species, *Decapterus tabl*. Therefore, 21 species were recorded in Korea up to date. Until now, three species of the genus *Decapterus* (*D. muroadsi, D. maruadsi and D. tabl*) were reported from Korean sea. In this study, *Decapterus akaadsi* is redescribed and figured as new record in Korea.

Materials and Methods

Two specimens of the carangid fish were collected in Busan, Korea, May 25, 1995 and Feb. 12, 1993 and were identified as an unrecorded species, *Decapterus akaadsi* Abe. The methods of taking accurate data are frequently dependent on knowledge of morphology of the characters. Measurements and counts of this specimens are followed by the method of Gushiken (1983). Specimens were measured with 1/20 mm vernia caliper to the nearst 10th of millimeter. After observation, specimens were fixed in formalin (HCHO, 30%), and deposited at the taxonomical laboratory, Coastal & Offshore Resources Division, National Fisheris Research and Development Institute (NFRDI) in Busan, Korea.

Results

Decapterus akaadsi Abe, 1958 (New korean name: Bulkeon Karagi) (Fig. 1)

Decapterus kurroides (Bleeker): Oshima, 1925: 361 Philippin Jour. Sci. (Formosa); Chan, 1968: 90, pl. 48, H.K. Gover. Press (Hong Kong); Gushiken, 1976: 46, pl. 1, Biol. Mag. Okinawa (Japan); Kimura et Suzuki, 1981: 8 Bull. Fac. Fish., Mie

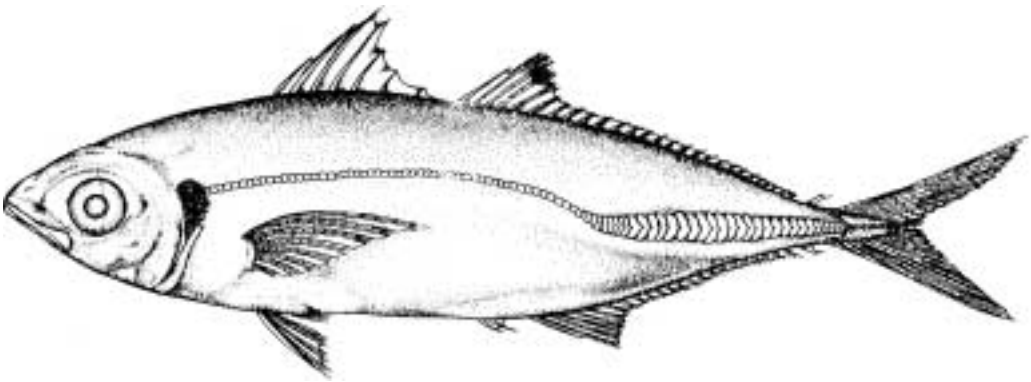

Fig. 1. *Decapterus akaadsi* Abe, NFRDI 2191, 269.3 mm SL.

Table 1. Comparison of meristic and proportional measurements character of *Decapterus akaadsi*

Characters	Present study	Abe (1958)	Suzuki (1962)	Gushiken (1983)
Standard length (mm)	236～269	183～193	172～180	155～192
Dorsal fin rays	27～29	29	27～30	27～29
Anal fin soft rays	22	24	20～23	21～23
Scutes	33	35～38	34～36	33～34
Gill rakers	27～30	29～31	28	30～32
in Standard length				
Body depth	4.1～4.4	4.2	3.8～4.0	3.8～3.9
Head length	3.9	3.5～3.6	3.1～3.3	3.6
in Head length				
Eye length	3.8～4.3	3.4	3.5～5.7	3.5～3.7
Pectoral fin length	1.0	1.1	1.0～1.1	1.0～1.1

Note: The number of gill rakers are on the lower limb (Kimura and Suzuki, 1981)

Univ. (Japan)

Decapterus kurroides akaadsi Abe, 1958: 175, Kazama-Shobo, Tokyo (Japan).

Decapterus akaadsi Suzuki, 1962: 222, Rep. Fac. Fish., Pref. Univ. Mie (Japan).

Materials. NFRDI 2190, 2 specimens, 236.4 mm, 269.3 mm SL. Busan, Korea, May 25, 1995.

Description. D. VIII-I, 27-29; A. II-I, 22; P. i, 21; scutes 33; gill rakers 11+27-30.

Diagnosis. In length of body: head 3.9; depth 4.1-4.4. In length of head: snout 3.1-3.2; eye 3.8-4.3; upper jaw 2.7-2.8; interorbital width 3.4-3.9; postorbital length 2.4-2.6; length of 3rd dorsal spine 2.0-2.2; height of 2nd dorsal fin 2.3-2.5; basal length of the same 0.8-0.8; height of anal fin 2.5-2.7; basal length of the same 0.9-1.0; length of pectoral fin 1.0; of pelvic fin 2.1-2.2; of upper caudal lobe 1.1-1.2; depth of caudal peduncle 4.3-5.4; length of the same 2.1-2.5. In length of eye diameter: suborbital width 2.5-3.1; length of 1st anal spine 4.9-5.6 (Table 1).

Body almost fusiform like mackerel. Predorsal

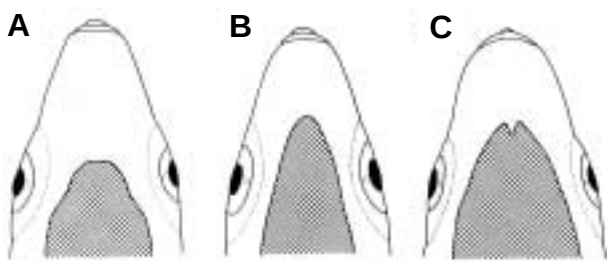

Fig. 2. Diagram of dorsal view that covered scales of the upper head in *Decapterus*.
(A) *D. akaads*i, (B) *D. maruads*i and (C) *D. tabl.*

profile slightly convex. Predorsal scales extending beyond anterior margin of pupil or eye (Fig 2). Jaw reaching to below anterior of eye. Lower jaw a little longer than upper jaw. Minute teeth in a single series in jaws, in a long median band on prevomerine shaft, in a band on palatines and tongue. Adipose eye-lid well developed. Opercular membrane smooth. Lateral line declivous below orgin of second dorsal, becoming straight

Table 2. Comparison of meristic and proportional measurements of *Decapterus maruadsi*, *D. tabl* and *D. akaadsi*

Characters	*D. maruadsi** (Gushiken, 1983)	*D. tabl** (Gushiken, 1983)	*D. akaadsi* (present study)
Standard length (mm)	182～189	301～315	236～269
Dosal fin soft rays	31～32	31	27～29
Anal fin soft rays	27～29	24～25	22
Scutes	33～35	38～40	33
Gill rakers	35～39	30～32	27～30
in Standard length			
Body depth	4.3	5.2	4.1～4.4
Head length	3.8～3.9	3.4～3.6	3.9
in Head length			
Eye length	4.1～4.2	4.5～4.7	3.8～4.3
Pectoral fin length	1.0	1.4	1.0

* Guchiken (1983)

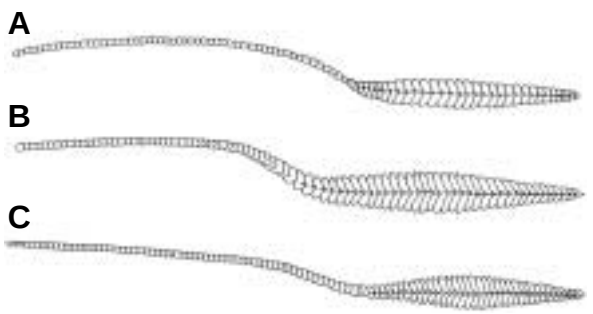

Fig. 3. The shape of lateral lines in *Decapterus*. (A) *D. akaadsi*, (B) *D. maruadsi* and (C) *D. tabl*.

below 13～14th ray of it. Scales cycloid. This species have which are present on almost entire length of the stright portion of lateral line (Fig 3). Pectoral fin falcate. Its posterior and beyond origin 2nd dorsal fin. Detached single rayed finlet at terminal of second dorsal and anal fin. Second dorsal fin slightly higher than first dorsal fin.

Color: Bluish green above, silvery below. Large black blotch on opercle. Dorsal, pectoral and caudal reddish, other fins pale. When fixed in formalin, dark brown above, with brown below, fins light brown except 1st dorsal and anterior lobe of 2nd dorsal fin. Opercular spot distinct.

Distribution: This species is distributed in the East and South China seas, and southern Japan. This study reveals this species inhabits in the southern waters of Korea.

Remarks: *D. akaadsi* was firstly recorded as *D. kurroides* by Oshima (1925) and then, it was redescribed by Abe (1958) as subspecies of *D. kurroides*. Suzuki (1962) renamed this species as current scientific name, *D. akaadsi*. Abe (1958) refered that this is a subspecies of *D. kurroides adaadsi*, which was close to *D. kurroides* Bleeker, *D. dayi* Wakiya and were lumped under the name of *D. kiliche* Cuvier (Abe, 1958). This differs from *Decapterus akaadsi* in having shorter pectoral fin and in the position of the anteriorest scute in the lateral line. This species has the deepest body among *Decapterus* species and resembles *D. tabl* at first sight, both being colourful but differs from this: hind margin of opercular membrane not serrate, pectoral fin extending to or beyond orgin of second dorsal fin, the number of rays of dorsal and anal fin (Table 2). Although Gushiken (1976) identified the present species with *D. kurroides* Bleeker based on a guess work in his paper, a data sheet of Bleeker's holotype from Smith–Vaniz clearly indicate that *D. kurroides* differs from *D. akaadsi* in having a longer head, predorsal scales not extending beyond the anterior portion of the prevomer. However, both are quite alike in counts and measurements except head length. Therefore, Gushiken admit that *D. akaadsi* is a valid species.

References

Abe, T. 1958. *Decapterus kurroides akaadsi* Abe, (Carangidae) In Tomiyama, I. & T. Abe. Figured and descriptions of the fishes of Japan. Kazama –shobo, Tokyo. 58 : 1215～1219, pl. 235, fig 593.

Chan, W.L. 1968. Marin fishes of Hong Kong, Part 1. Hong Kong Government Press, XXV +129pp., 35 figs., 71 pls.

Chyung, M.K. 1977. the Fishes of Korea. IL–JI Sa Pub. Co. Seoul, 727pp. (in Korean)

Gushiken, S. 1976. Revision of the genus *Decapterus* Bleeker of Japan. Biol. Mag. Okinawa, 14 : 41～54, 2 fig., 1 pl.

Gushiken, S. 1983. Revision of the carangid fishes of Japan. Galaxea, Publ. Sesoko Mar. Sci. Cent. Univ. Ryukyus, 2 : 135～364.
Kimura, S. and K. Suzuki. 1981. Taxonomical consideration on Japanese carngid fishes of the genus *Decapterus* Bleeker Bull. Fac. Fish., Mie Univ., 8 : 1～9, 5 figs.
Kim, Y.U. and J.R. Koh. 1994. A new record of the carangid fish, *Decapterus tabl* (Pisces, Carangid) from Korea. Korean J. Zool., 37 : 156～160.
Laroche, W.A., W.F. Smith-Vaniz and S.L. Richardson. 1984. Carangidae: development. Rages 510-522 in H.G. Moser, W.J. Richards, D.M. Cohen, M.P. Fahay, A.W. Kendall, Jr. and S.L. Richardson, eds. Ontogeny and Systematics of fishes. Amer. Soc. Ichthyol. Herpetol., Spec. Publ. 1.
Nakabo, T. 1993. Fishes of Japan with Pictorial keys to the species. Tokai Univ. Press, Tokyo, 1474pp. (in Japanese)
Nelson, J.S. 1994. Fishes of the world. 3rd ed., John Wiley and Sons, INC, New York, 600 pp.
Oshima, M. 1925. A review of the carangoid fishes found in the waters of Formosa. Philippin. Jour. Sci., 26(3) : 345～413, pl. 1.
Suzuki, K. 1962. Anatomical and taxonomical studies on the carangid fishes of Japan. Rep. Fac. Fish. Pref. Univ. Mie, 4(2) : 43～232.
The Korean Society of Systematic Zoology. 1977. List of Animals in the Korean (excluding insects). Academy Press. Seoul, 489 pp. (in Korean)

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전갱이과 Carangidae, 가라지속 *Decapterus*에 속하는 *Decapterus akaadsi* 2종이 처음으로 우리나라 남해안(부산)에서 채집되었기에 이를 보고한다. *Decapterus akaadsi*는 가라지속의 다른 어류들과 형태적으로 비슷하지만 모비늘 시작부위, 가슴지느러미 길이, 등과 뒷지느러미 연조수, 새파수 및 두정부의 비늘위치 등에서 잘 구별된다. *Decapterus akaadsi*의 국명은 "붉은가라지"로 명명한다.