

New Records of two species, *Megalaspis cordyla* and *Champsodon snyderi* (Pisces : Perciformes) from Korea

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Four specimens of *Megalaspis cordyla* (Linnaeus) belonging to the family Carangidae and three specimens of *Champsodon snyderi* Franz belonging to the family Champsodontidae were collected for the first time from Nam-hae and Pusan, Korea.

Megalaspis cordyla is similar to other genera, but differs in some morphological characters : the presence of finlets, the beginning portion and shape of scutes, and the length of pectoral fin. A new Korean name "Ko-dung-ka-ra-ji" is proposed for the *M. cordyla*.

Champsodon snyderi differs from *C. capensis* in the number of pectoral fins and the presence of scale on cheek ; from *C. longipinnis* in having a pale spinous dorsal fin ; from *C. guentheri* and *C. machaeratus* in having 11 lower gill rakers, 19 soft dorsal fin rays. A new Korean name "Ak-o-chi" is proposed for the *C. snyderi*.

Introduction

The family Carangidae belonging to the order Perciformes, which includes a large number of tropical and temperate marine species of important commercial fishes of the World (Suzuki, 1962). Among 140 species of the world described by Laroche *et al.* (1984), 54 species were recognized by Nakabo in Japan (1993). However, only 21 species were recorded in Korea to date in which 20 species of the carangid group were described by Chyung (1977) and one unrecorded species, *Decapterus tabl* was added by Kim and Koh (1994). A revision of the Japanese carangids was made first by Wakiya

(1924), where 74 species in 9 subgenera and 14 genera under 4 subfamilies were recorded from Japan and Formosa. Suzuki (1962) established a system of 34 species, 17 genera and 5 subfamilies on the anatomical basis. Smith-Vaniz (1984) worked Ontogeny and Systematics of the fishes including the family Carangidae. Kijima *et al.* (1986) offered genetic relationships in the family Carangidae. Gushiken (1988) reported phylogenetic relationships of the genera in the family Carangidae. Valuable efforts have been made by many foreign ichthyologists during the past decades, but not much in Korea.

The family Champsodontidae belonging to

the order Perciformes, which includes the only genus *Champsodon*. This family contains 13 species of the world, 3 species recorded in Japan (Nakabo, 1993; Nemeth, 1994), and distribute tropical and temperate marine (Matsubara *et al.*, 1964; Nelson, 1994). The family Champsodontidae was first described by Günther (1867), and further described by Regan (1908). Matsubara *et al.* (1964) reviewed the species of *Champsodon* from Japan and Tonking Bay. Nemeth (1994) studied systematics and distribution of the family Champsodontidae in which thirteen species were recognized, three of which were described as new.

In this study, 7 specimens which were collected for the first time in southern coast of Korea were described as unrecorded species from Korea.

Materials and Methods

The carangid fishes, two specimens among them were captured by Set net at Nam - hae, Kyung - sang - nam - do, Korea, October 27, 1987, and two with an aid of fishermen at the Jagalchi fish market, Pusan city, Korea, September 15, 1994 were identified as *Megalaspis cordyla* (Linnaeus). The specimens of champsodontid fishes, which were collected using Gape nets with wings and also collected at the Mil - rak fish market in Pusan on 8 March 1995, were identified as *Champsodon snyderi* Franz.

Measurements and counts of these two species followed the methods of Gushiken (1983) and Hubbs and Lagler (1964). Specimens were measured with a caliper to the nearest 10th of millimeter. We used the staining reagent, Alizarine red S, for the precise examination of the scales of the champsodontid fish. All specimens were fixed in the solution of formaline

(HCHO, 30%), and deposited at the Ichthyological Laboratory, Departement of Marine Biology, National Fisheries University of Pusan.

Family Carangidae

Genus *Megalaspis* Bleeker, 1851

(New Korean Genus Name : Ko-dung-ka-ra-ji-sog)

Megalaspis Bleeker, 1851 : 342 (Type species : *Megalaspis rotteri* Bleeker, 1852 = *Scomber cordyla* Linnaeus, 1758)

Body oblong - elongate and compressed. Scales on straight lateral line totally developed into extremely deep scutes maximum scute height larger than eye diameter. Mouth ; upper jaw with an outer row of strong conicals and an inner band of small teeth, lower with a single row of small teeth. First dorsal fin not higher than second dorsal. Posterior dorsal and anal rays consisting of detached finlets. Edge of caudal fin dark.

Megalaspis cordyla (Linnaeus), 1758

(New Korean Name : Ko-dung-ka-ra-ji)

Scomber cordyla Linnaeus, 1758 : 298 (America).

Caranx rotteri : Cuvier in Cuvier et Valenciennes, 1833 : 29 (India).

Megalaspis rotteri Bleeker, 1852 : 49 (Moluccas).

Megalaspis cordyla Wakiya, 1924 : 147, pl. 15, fig. 1 (Formosa) ; Smith, 1949 : 221, fig. 534 (S. Africa) ; Suzuki, 1962 : 227, fig. 61 (Japan) ; Chan, 1968 : 86, pl. 45 (Hong Kong) ; Gushiken, 1983 : 202, fig. 28 (Japan).

Material : NFUP 04021~04022, 2 specimens, 299.5mm, 305.0mm SL. Nam - hae, Korea, October 27, 1987 ; NFUP 04337~04338, 2 specimens, 205.2mm, 208.4mm SL. Jagalchi fish market, Pusan city, Korea, September 15,

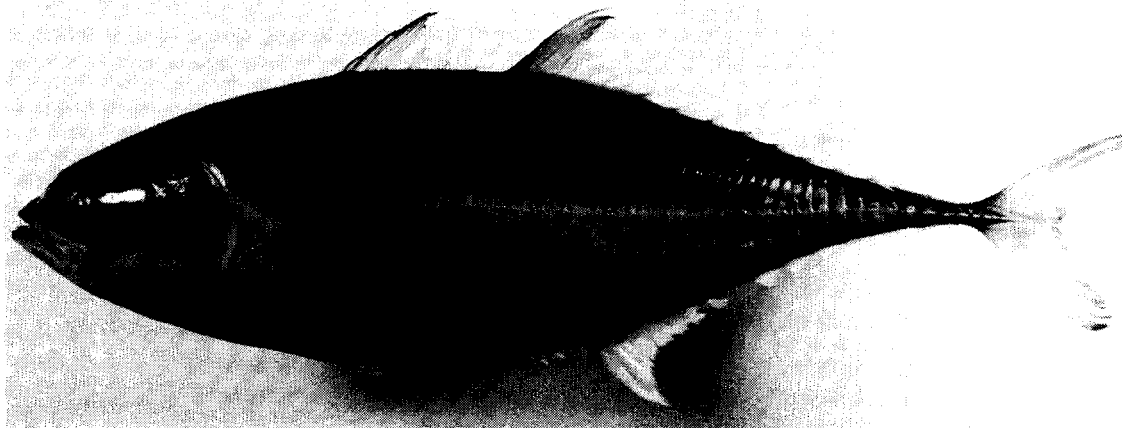


Fig. 1. *Megalaspis cordyla*(Linnaeus), NFUP 04022, 305.0mm SL.

1994.

Description : D. VIII - I, 9~10, posterior 9 rays consisting of semi-detached finlets ; A. II - I, 9~10, posterior 7~8 rays semi-detached finlets ; P. i, 21 ; S. 52~56.

In length of body : head 4.00~4.58 ; depth 3.55~3.91. In length of head : length of origin of 1st dorsal fin 2.99~3.01 ; of 2nd dorsal fin 2.00~2.03 ; of pelvic fin 3.91~3.92 ; of anal fin 1.96~1.99 ; snout 3.42~3.57 ; eye 3.61~4.23 ; interorbital width 3.01~3.57 ; height of 1st dorsal spine 2.10~2.38 ; of 2nd dorsal spine 1.82~2.05 ; basal length of 1st dorsal fin 1.59~1.81 ; of 2nd dorsal fin 0.56~0.57 ; height of anal fin 2.24~2.32 ; length of anal fin 0.61~0.71 ; of pectoral fin 0.71~0.81 ; of pelvic fin 1.73~1.83.

Profiles almost equally convex. Predorsal profile gradually curved. Body oblong-elongate and compressed. Snout pointed, subequal to eye. Jaw reaching to below middle of eye ; lower jaw a little larger than upper jaw ; villiform teeth in a triangular patch on prevomer and in a band on palatines and tongue. Adipose eye-lid well developed. Scutes extremely sturdy ; extending from lower portion of 4~5th spine of first dorsal fin to basal of caudal fin. Scales finely cycloid, small ; all around eye, mouth,

cheek, top of head, opercles chiefly naked. Eye little elevated and advanced in head. Detached finlets on dorsal and ventral sides of caudal peduncle. Pectoral fin very elongate and falcate ; its posterior and beyond origin 2nd dorsal fin. Caudal fin widely forked, lobes equal. Second dorsal fin slightly higher than first dorsal fin.

Color : When fresh, bluish grey to green above, shading to bright silvery below. All fins pale to dark ; caudal fin with dark edge. Opercle with a large dark spot. When fixed in formaline, whole dark brown above, with light brown below, fins brownish except for pectoral fin. Opercular spot distinct.

Distribution : This species is widely distributed in warm seas of Indo-Pacific to Japan and Australia. As a result of this study, the southern waters of Korea is included as a new distribution area of this species.

Remark : The species was first recorded as *Scomber cordyla* by Linnaeus(1758). Wakiya (1924) renamed this species current scientific name, *Megalaspis cordyla*. This species is similar to the genus *Trachurus* and *Decapterus* morphologically, but differs from them in the following characteristics : the presence of finlets, the beginning portion of scute and the

length of pectoral fin etc. This species also resembles the genus *Alepes* and *Uraspis* fishes in the body shape and the length of pectoral fin, but distinguished by the external feature of scute(Gushiken, 1983). Therefore, *M. cordyla* is well diagnostic from another genus of the family Carangidae by the shape and beginning portion of scute.

Family Champsodontidae

(New Korean Family Name : Ak-ô-chi-kwa)

Body small, elongate, slightly compressed, less than 150mm SL. Mouth large, oblique ; maxilla extending posteriorly to below eye or beyond ; dentary extending anteriorly beyond premaxillary symphysis. Jaws with bands of cardiform teeth and an inner band of much larger depressible, needle - like teeth ; 2 patches of teeth on vomer, none on palatines. A long dagger - like spine at angle of preopercle. Eye large, dorsal in position. Two nostrils on each side, located for forward on snout ; anterior-most nostril with large funnel of thin tissue. Two dorsal fins, separated by distance less than basal length of first dorsal fin ; anal fin spineless ; pectoral fin small, set high on body ; ventral fin large, jugular ; vertebrae 10 ~ 12 + 19 ~ 21 = 29 ~ 33. scales very small, rough, with 2~9 spinules projecting from posteri-

or margin of broad plate. Two horizontal lateral lines composed of numerous superficial whitish papillae, extending from opercular margin onto caudal fin.

Genus *Champsodon* Günther, 1867

(New Korean Genus Name : Ak-ô-chi-sog)

Champsodon Günther, 1867 : 102(type species *Champsodon vorax* Günther, 1867, by monotypy).

Centropercis Ogilby, 1895 : 320 - 322[type species *Centropercis nudivittis* Ogilby, 1895(= *Champsodon nudivittis*), by monotypy].

Family Champsodontidae has the only genus *Champsodon*, so the description of the genus is that of family.

Champsodon snyderi Franz, 1910

(New Korean Name : Ak-ô-chi)

Champsodon snyderi Franz, 1910 : 82, pl. 9, fig. 74(type locality : Fukuura, Misaki, Yagoshima, Japan)

Material : NFUP 04471~04473, 3 specimens, 62.8mm, 76.5mm, 78.8mm SL, Milrak fish market, Nam-gu, Pusan city, Korea, March 8, 1995.

Description : D. V, 19~20 ; A. 18 ; P1. 11 ; P2. I, 5 ; GR. 1+10.



Fig. 2. *Champsodon snyderi* Franz, NFUP 04472, 76.5mm SL.

In length of body : head 3.47~4.00 ; depth 5.63~6.34 ; preanal 0.53~0.56. In length of head : snout 4.22~4.76 ; eye 4.24~5.97 ; pelvic fin 1.09~1.28 ; maxilla 1.38~1.67. In length of eye : interorbital width 1.12~1.62 ; least distance between eye and maxilla 0.52~0.89.

Mouth large ; maxilla extending to the posterior border of eye or slightly beyond eye. Preopercle with three spine ventro - posteriorly, anterior two spine shorter and indicated for forward, and one spine longer and indicated for backward. Belly and chin naked ; large, discrete, triangular patch of scales between pectoral and pelvic fin bases(Fig 3A). Dorsal fin separated, first dorsal fin base shorter and sec-

ond longer ; pectoral fin very small ; pelvic fin very large, postulated to the fore part of pectoral fin ; anal fin spineless ; caudal fin forked. Vertical rows of sensory papillae between horizontal lateral lines not closely surrounded by scales ; scales absent between majority of adjacent papillae(Fig. 3B).

Color in formaline : Body dark brown dorsally, pale below, with row of spots where dark and light pigmentation meet ; fins pale except caudal fin base with a dark blotch.

Distribution and Habitat : This species was captured by trawl at depths of 37~73 m in waters of Japan(Nagasaki, Wakasa bay, Kyoto Prefecture) and Australia(New South Wales)

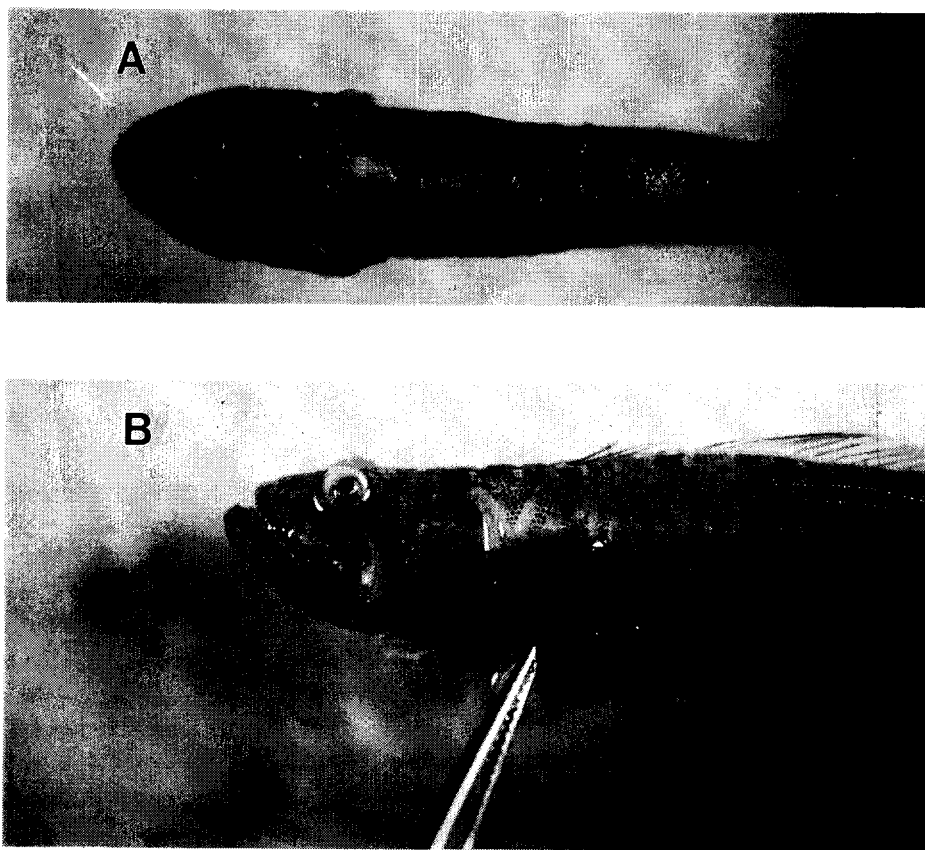


Fig. 3. Photograph showing the scale patterns of *Champsodon snyderi*.
A. Ventral view of scale patterns : B. Lateral view of scale patterns

(Nemeth, 1994), and also reported from the Yellow Sea of Korea and the East China Sea (Yamada *et al.*, 1986). This species is known to inhabit in the deep sea, widely distributed vertically from 190 to 570 m water depth (Okamura *et al.*, 1985). In the study of the fish larvae in the adjacent waters of Cheju island in summer, Yoo *et al.* (1990) found this species. As a result of this study, the southern sea and Cheju island of Korea is included at the distribution area of this species.

Remark : *Champsodon*, the only genus of the family Champsodontidae contains 13 species (Nemeth, 1994). *Champsodon snyderi* was first described by Franz (1910). This species is distinct from *C. longipinnis* in having a pale spinous dorsal fin ; and from *C. guentheri* and *C. machaeratus* in having 11 lower gill rakers, 19 soft dorsal fin rays, the maxilla extending past the posterior border of the eye. *C. snyderi* is very similar to *C. capensis* but differs from *C. capensis* by the following characters : belly scaled anterior to vent, up to one - half to three quarters the distance to pelvic fin bases (vs naked), triangular patch of scales between pectoral and pelvic fin bases extending posteriorly toward vent (vs discrete) in *C. snyderi* (Nakabo, 1993 ; Nemeth, 1994).

Monophyly of the family Champsodontidae is supported by the unique, derived features outlined in the description of the family. No phylogenetic hypothesis of intrafamilial relationships has been proposed to date, because of lack of confidence in potential outgroup choices (Nemeth, 1994).

The family Champsodontidae and the only genus *Champsodon* are recorded for the first time from Korea in this study. The shape and most characteristics of the present specimens conform well to the original description of Franz (1910) and the revision of Nemeth (1994).

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한국산 *Megalaspis cordyla*와 *Champsodon snyderi*(농어목 어류) 2 미기록종

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전갱이과, Carangidae에 속하는 *Megalaspis cordyla*와 Champsodontidae에 속하는 *Champsodon snyderi*가 처음으로 우리나라의 남해안에서 채집되었기에 이를 보고한다. *Megalaspis cordyla*는 전갱이과 어류의 다른 屬들과 형태적으로 유사하나 모비늘의 유무와 모비늘의 시작부위 및 그 형태, 그리고 가슴지느러미의 길이 등에서 잘 구별된다. 따라서, *Megalaspis* 屬의 국명은 “고등가라지屬”으로, *Megalaspis cordyla*의 국명은 “고등가라지”로 명명한다. Champsodontidae에 속하는 *Champsodon snyderi*는 *C. capensis*와 형태적으로 닮아 있지만, 가슴지느러미의 수와 뺨 부위의 비늘의 유무에 의해, *C. longipinnis*와는 등지느러미 극조부의 흑색소포의 유무에 의해, *C. guentheri*와 *C. machaeratus*와는 새파수와 등지느러미 연조수에 의해 구별된다. Champsodontidae의 국명은 “악어치과”로, *Champsodon* 屬의 국명은 “악어치屬”으로, 그리고 *Champsodon snyderi*의 국명은 “악어치”로 명명한다.