

A New Species of the Genus *Repomucenus* (Callionymidae) from the Yellow Sea

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Abstract A new species, *Repomucenus koreanus*, is described on the basis of specimens taken on shallow sandy-muddy level bottoms of the coasts of the Yellow Sea. It has 10 dorsal and 10 anal rays, and 15 caudal vertebrae; these meristic characters of this species are higher than those of other *Repomucenus* species.

During a survey of the dragonet fishes from the coasts of the Yellow Sea, a peculiar species having 10 dorsal and 10 anal rays and 15 caudal vertebrae was collected. Since this species is different from other species of *Repomucenus*, we here describe it as a new species. This new dragonet attains about 110 mm in standard length, and belongs to the genus *Repomucenus* Whitely (1931) which is re-described by Nakabo (1982), based on the conditions of the cephalic lateral line system, lateral line connection on the dorsal surface of the caudal peduncle, shape of the preopercular spine, coloration of dorsal surface of the body and strongly depressed body.

Li (1955) described dragonet specimens from Qingdao, China as *Callionymus richardsoni* Bleeker. As a result of our examination, Li's specimens should be identified with this new species.

At the Korean coasts of the Yellow Sea, this species inhabits very shallow sandy-muddy level bottoms (5–30 m). The specimens from Sa-dong, Korea, were collected with small shrimps by a fixed shore net.

Counting and measuring methods follow Nakabo (1982), and proportional measurements are shown in Table 1. Vertebrae were counted by Soft-X-ray negatives.

Repomucenus koreanus sp. nov.

(Figs. 1–3)

(New Korean name: Ch'am-Tot-Yangt'ae)

(New Chinese name: Chao-Xian-Xian)

Callionymus richardsoni (not of Bleeker): Li, 1955: 184, fig. 117 (Qingdao).

Holotype. SMWU (Department of Biology, Sang Myung Women's University) 3001, a male, 84.8 mm

SL, Sa-dong, Ansan-shi, Kyöng'gi-do, Korea, 37°17'N, 126°47'E, May 30, 1984.

Paratypes. SMWU 3014–3015 and FAKU (Department of Fisheries, Faculty of Agriculture, Kyoto University) 53914, 2 males and a female, 77.2–85.0 mm SL, May 12, 1984. SMWU 3002–3004 and FAKU 53900–53904, 7 males and a female, 75.1–89.2 mm SL, May 30, 1984. SMWU 3018, 3019, 3021–3026 and FAKU 53917–53924, 8 males and 8 females, 86.7–111.3 mm SL, July 30, 1984. All the above paratypes were collected from the same site as the holotype. SMWU 3087–3095 and FAKU 55308–55316, 64.9–92.4 mm SL, 10 males and 8 females, Pangsari, Sorae-up, Shihüng-gun, Kyöng'gi-do, Korea, 37°22'N, 126°42'E, May 27–30, 1985. SMWU 3086, a male, 65.3 mm SL, Yamido-ri, Misöng-up, Okgu-gun, Chollabuk-do, Korea, 35°50'N, 126°30'E, Oct. 24, 1985. SMWU 3061–3077 and FAKU 55024–55035, 17 males and 12 females, 54.9–72.2 mm SL, Kümho Isl., Kümho-ri, San'i-myön, Hae'nam-gun, Chollanam-do, Korea, 34°40'N, 126°20'E, on sandy-muddy bottoms at a depth of 5–10 m, Sep. 4, 1985. IZAS (Institute of Zoology, Academia Sinica) 31339–31341, 66063, 4 males, 73.0–104.2 mm SL, Qingdao, Shandong, China, May 6, 1953.

Diagnosis. This species differs from other species of *Repomucenus* in the following characters. Dorsal fin IV-10; anal fin 10; vertebrae 7 (abdominal)+15 (caudal). Lateral side of body in male with a dark longitudinal line at the middle. First dorsal fin small and slightly dusky with white oblong marks at the middle in male; anterior half transparent and posterior half black in female.

Description. Holotype: D IV-10; A 10; P₁ i+18; P₂ I, 5; C i+7+ii; VN 7(AV)+15(CV). Paratypes: D IV-10 (rarely 9 or 11); A 10 (rarely 11); P₁ i+17–20 (rarely ii+18); P₂ I, 5; C i+7+ii (rarely i+6+ii, ii+6+ii, ii+6+iii); VN 7+15 (rarely 7+14, 7+16) (Fig. 3).

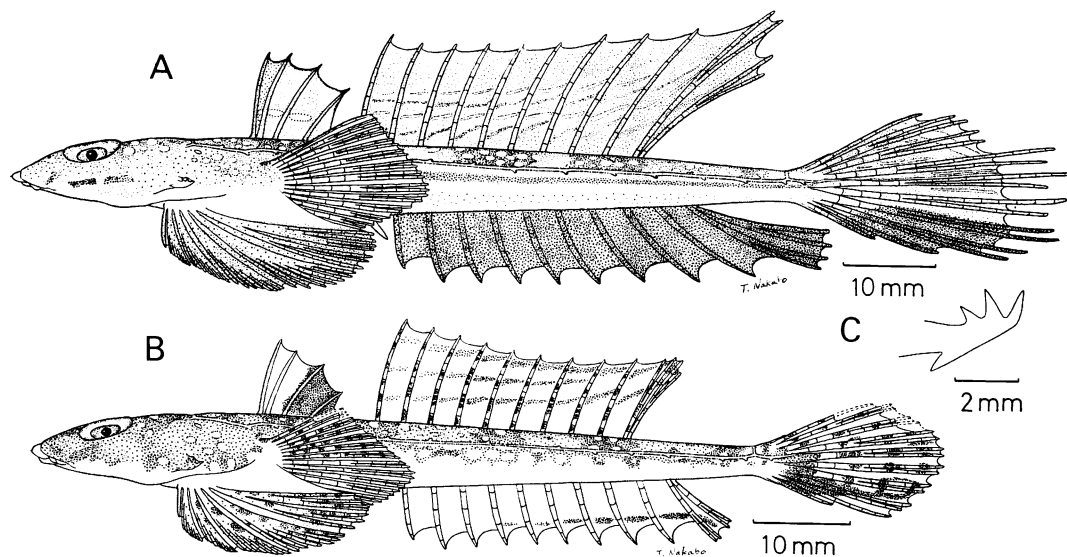


Fig. 1. *Repomucenus koreanus* sp. nov., from the Yellow Sea. A, lateral view of the holotype, male, SMWU 3001, 84.8 mm SL; B, lateral view of the paratype, female, SMWU 3002, 75.1 mm SL; C, left preopercular spine of the paratype, female, FAKU 53923, 94.9 mm SL.

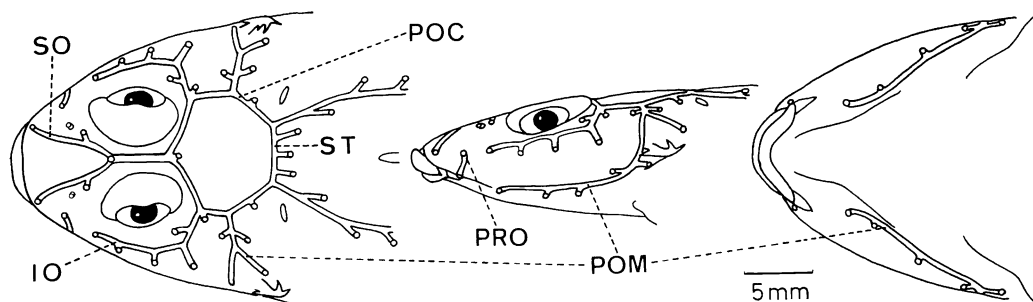


Fig. 2. The cephalic lateral line of *Repomucenus koreanus* sp. nov. Dorsal, lateral and ventral views. IO, infraorbital canal; POC, postocular commissure; POM, preoperculo-mandibular canal; PRO, preorbital canal; SO, supraorbital canal; ST, supratemporal canal.

Body elongate and depressed. Head depressed. Eye moderately large. Interorbital space very narrow. Gill-opening oval, located midway between dorsoposterior edge of eye and upper origin of pectoral fin. Preopercular spine 2(1-3), processes curved upward on inner side; at base an antrorse process present; posterior tip curved upward.

Upper jaw protractile, its posterior end not reaching anterior edge of eye. A pair of nostrils without tube. Teeth on jaws villiform in broad bands. Palatine and vomer toothless. Anal papilla conical, more elongate in males than in

females.

Cephalic lateral line system developed (Fig. 2). Infraorbital canal with 3 downward branches and extending beyond anterior edge of eye. Postocular commissure connected with preoperculo-mandibular canal; dorsal part of preoperculo-mandibular canal with an antrorse short branch and two retrorse (a short and long) branches. Lateral line extending beyond caudal peduncle and reaching distal tip of a median caudal fin ray; the lines at opposite sides interconnected by a transverse commissure across dorsal surface of caudal peduncle.

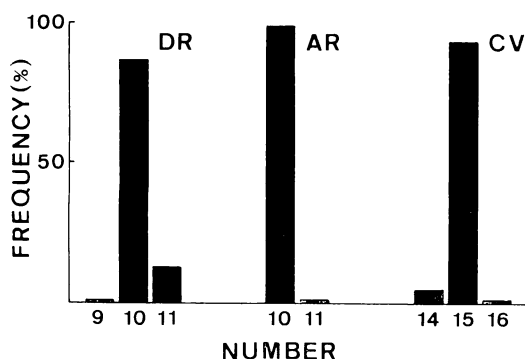


Fig. 3. Frequency distribution in dorsal, anal rays and caudal vertebrae of *Repomucenus koreanus* sp. nov. (80 individuals). DR, dorsal ray; AR, anal ray; CV, caudal vertebra.

First dorsal fin small in each sex, but becoming a little higher in males with growth than in females, and beginning above a little before upper origin of pectoral fin in males, above upper origin of pectoral fin in females. Second dorsal fin slightly elevated anteriorly and posteriorly; posterior part becoming higher than anterior part in males with growth, but anterior part higher than posterior part in females. Dorsal rays unbranched except for last one; tips of both branches of last ray branched; last ray more elongate in males than in females. Anal rays increasing in length posteriorly and unbranched except for last one; tips of both branches of last ray branched; last ray more elongate in males than in females. Pectoral fin truncate in upper half, rounded in lower half, and reaching 3rd dorsal ray in males, and 2nd ray in females. Pelvic fin rounded, not reaching 1st anal ray, and connected by membrane to lower part of pectoral fin base. Caudal fin rounded in each sex; 4 median caudal fin rays somewhat elongate and filamentous in males.

Color in 10% formalin: Body dark brown with 5–6 darker transverse bands and many white small circles above, white below; lateral side of body with a longitudinal dark line in adult males. Ceiling and floor of mouth white. Cheek with 3 vermicular dark marks in adult males. First dorsal fin slightly dusky with an oblong white mark on median part of each membrane and distal tips of dorsal spines black in adult males; anterior half of fin transparent and posterior half black in females and younger males. Second dorsal fin faint dark with 2–3 darker lines and 2–3 white

lines on each membrane in males; transparent with 2–3 darker lines on each membrane in females. Upper half of pectoral fin with many small dark spots. Pelvic fin dark brown in males, faint dark with many darker spots in females. Anal fin uniformly blackish brown in males, transparent with a dark line on the posterior part near distal margin in females. Upper half of caudal fin faint dark with some narrow white lines and a white line near distal margin, lower half blackish brown in males; upper half with several dark spots, lower half dark brown in females.

Etymology. The species name, *koreanus*, refers to the locality where the holotype specimen was collected.

Remarks. *Repomucenus koreanus* is closely related to *R. valencienni* (Temminck et Schlegel) and *R. lunatus* (Temminck et Schlegel) in having the same pattern of the cephalic lateral line system (Nakabo, 1983: fig. 16-C), almost the same shape of the preopercular spine (Nakabo, 1983: figs. 22, 23) and the filamentous caudal fin rays in males (Nakabo, 1983: figs. 22, 23), but differs from the latter two species in the following characters: 1) 10 dorsal and 10 anal fin rays (9 in the latter two), 2) 15 caudal vertebrae (14), 3) 4 dorsal spines short in males (4 dorsal spines elongate and filamentous in the male of *R. valencienni*; 1st dorsal spine elongate and filamentous in the male of *R. lunatus*) and 4) coloration of unpaired fins and body in both sexes.

Li (1955) reported *Callionymus richardsoni* Bleeker (= *Repomucenus richardsonii* sensu Nakabo, 1982, 1983) from Qingdao, China. His *C. richardsoni* is similar both to the original description of Bleeker (1854) and the specimens of *R. richardsonii* redescribed by Nakabo (1983) in having a small first dorsal fin in male, but differs from the latter two in having 10 dorsal and 10 anal rays, and in coloration of unpaired fins. His description (except that of the coloration of female's 1st dorsal fin) and figure agree well with *R. koreanus*. Li (1955) examined 3 male specimens (IZAS 31339–31341), but he did not examine female specimens; his description of the female's 1st dorsal fin was cited from Wang and Wang (1936: 205–206). As a result of our examination, the 3 male specimens he examined should be identified with *R. koreanus*.

Li (1962) described *C. richardsoni* on the basis of specimens from the South China Sea and figured the species (fig. 568). But, the figure was taken

Table 1. Proportional measurements as the percent of standard length in *Repomucenus koreanus* sp. nov. Data show ranges; the means and sample sizes are in parentheses.

	Holotype		Paratypes			
			Korean coasts		Chinese coasts	
	male		juvenile male	female		male
Number of fish	1	42	3	30	4	
Standard length (mm)	84.8	58.3–107.0	37.1–47.0	54.9–104.6	73.0–104.2	
Body width	18.5	15.9– 21.0 (18.1, 42)	19.4–20.2 (19.8, 2)	18.0– 20.8 (20.0, 30)	16.8– 18.5 (17.8, 4)	
Body depth	10.3	7.4– 11.9 (9.9, 41)	8.4– 9.3 (8.9, 3)	8.1– 12.0 (10.2, 30)	7.8– 11.0 (8.9, 4)	
Caudal peduncle depth	4.1	3.6– 4.7 (4.2, 42)	4.2– 4.3 (4.3, 2)	3.6– 4.7 (4.1, 30)	3.8– 4.5 (4.2, 4)	
Predorsal length	30.8	26.3– 32.5 (30.7, 42)	31.1–31.4 (31.3, 3)	29.6– 33.9 (31.8, 30)	29.6– 32.5 (31.2, 4)	
Caudal fin length	34.0	25.9– 38.3 (31.9, 40)	20.7–22.8 (21.8, 3)	23.6– 28.9 (27.1, 30)	32.9– 40.3 (34.9, 4)	
Head length	23.0	20.5– 25.6 (23.8, 42)	21.6–23.6 (22.7, 3)	22.5– 26.6 (24.1, 30)	22.7– 24.8 (23.8, 4)	
Eye diameter	7.9	6.5– 9.0 (7.8, 42)	8.5–10.0 (9.2, 3)	6.8– 9.1 (7.9, 30)	6.9– 8.6 (7.6, 4)	
Snout length	8.7	8.0– 10.2 (8.9, 42)	7.5– 8.3 (7.9, 3)	7.8– 10.4 (8.8, 30)	8.5– 10.2 (9.0, 4)	
Upper jaw length	8.3	6.7– 8.9 (8.0, 42)	8.1– 8.6 (8.3, 3)	7.4– 8.9 (8.0, 30)	7.8– 8.6 (8.1, 4)	
Interorbital width	1.7	0.7– 1.8 (1.2, 42)	1.3– 1.6 (1.4, 3)	0.6– 1.6 (1.1, 30)	1.1– 1.4 (1.3, 4)	
1st dorsal spine length	11.1	8.3– 13.7 (11.0, 39)	6.7– 8.1 (7.3, 3)	8.4– 11.9 (9.7, 28)	12.2– 13.9 (13.0, 4)	
2nd dorsal spine length	11.3	8.7– 13.3 (11.0, 40)	7.0– 7.8 (7.4, 3)	8.4– 11.8 (9.8, 29)	12.0– 13.9 (12.7, 4)	
3rd dorsal spine length	11.0	6.6– 13.9 (10.1, 41)	5.4– 6.4 (5.9, 3)	6.5– 11.0 (8.2, 30)	11.3– 13.5 (12.0, 4)	
4th dorsal spine length	8.4	2.0– 11.3 (7.2, 41)	2.7– 4.2 (3.6, 3)	2.4– 5.9 (4.9, 28)	7.8– 9.3 (8.9, 4)	
1st dorsal ray length	14.5	12.8– 16.3 (14.8, 42)	13.6 (13.6, 1)	12.2– 17.0 (15.5, 30)	14.3– 16.2 (15.2, 4)	
Last dorsal ray length	25.0	11.5– 27.2 (19.8, 42)	10.2 (10.2, 1)	11.2– 13.9 (12.5, 29)	24.3– 29.3 (26.2, 4)	
1st anal ray length	7.1	6.4– 8.4 (7.4, 40)	6.5– 7.2 (6.7, 3)	6.6– 8.7 (7.6, 29)	7.0– 8.0 (7.5, 3)	
Last anal ray length	18.2	7.4– 18.8 (13.8, 42)	9.8 (9.8, 1)	9.6– 11.9 (10.7, 30)	15.3– 18.6 (16.7, 4)	
Pectoral fin length	19.8	18.3– 23.2 (20.0, 41)	17.0–18.6 (17.8, 2)	17.7– 23.3 (16.4, 28)	19.2– 21.2 (20.5, 4)	
Pelvic fin length	27.1	23.2– 28.8 (26.3, 42)	22.6–25.6 (24.2, 3)	22.9– 29.4 (26.8, 30)	26.5– 27.7 (27.0, 4)	
Preopercular spine length	3.7	3.0– 5.5 (4.2, 42)	4.9– 6.2 (5.6, 3)	2.9– 5.8 (4.4, 30)	3.0– 4.1 (2.6, 4)	
Anal papilla length	4.2	2.6– 10.1 (4.3, 40)	1.6– 2.3 (2.0, 3)	0.3– 1.3 (0.8, 30)	4.6– 5.2 (5.6, 4)	

from fig. 117 of Li (1955) showing *R. koreanus*. The specimens and description of Li (1962) agree well with *R. richardsonii*.

R. koreanus is endemic to the coasts of the Yellow Sea, and does not occur in adjacent waters. On the other hand, *R. valenciennesi* and *R. lunatus* are distributed on the coasts of the Japanese Archipelago (except the Ryukyu Islands) and southern coasts of the Korean Peninsula (Chyung and Kim, 1959; Chyung, 1977; Nakabo, 1983). At the central part of the Yellow Sea, there is a large cold water mass on the bottom, and at the northwestern part, mean water temperature at the surface is 12–15°C, which is 6–7°C lower than that at the Tsushima Warm Current area (Inoue, 1981). Generally, meristic characters of the fishes inhabiting cold waters tend to increase in number as compared with those of the fishes inhabiting warm waters. It must, therefore, be related to the colder habitat that *R. koreanus* has higher number of dorsal and anal rays and caudal vertebrae than *R. valenciennesi* and *R. lunatus*.

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黄海から採集されたネズッポ科魚類の1新種

中坊徹次・田 祥麟・李 思忠

黄海の韓国・中国沿岸の浅海域から得られたネズッポ科ネズッポ属魚類の1新種 *Repomucenus koreanus* (新韓国名: Ch'am-Tot-Yangtae; 新中国名 Chao-Xian-Xian, 朝鮮鯨行) を記載した。本種は前鰓蓋骨と頭部側線系において、日本産ネズッポ属のハタタテヌメリ *R. valenciennesi* とヌメリゴチ *R. lunatus* によく似ており、それら両種と近縁であるが、以下の形態的特徴で区別される。1) 背鰭は4棘10軟条、臀鰭は10軟条、2) 脊椎骨数は7(腹椎)+15(尾椎)、3) 雌雄ともに第1背鰭は小さく、背鰭棘は糸条にのびない、4) 第1背鰭は雄では全体に淡褐色で各鰭膜中部に白色の長円形の斑紋があり、雌では前半部が透明で後半部が黒褐色、5) 成熟した雄の体側中部には1本の暗褐色縦線がある。本種は黄海沿岸からしか採集されていず、黄海固有種と思われる。

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訂 正・Errata

魚類学雑誌 34 卷 3 号に以下の誤りがありました。お詫びして訂正いたします。

Japanese Journal of Ichthyology, 34(3), contents: cover page 1, left column, 13th line, read “津本欽吾” for “津本欽具”。

Ishihara: page 242, left column, synonym list, 8th line, read “*Raia fusca*” for “*Raja fusca*”。

Page 269, legend for Fig. 25, 2nd line, read “30 cm” for “30 mm”。

Page 285, right column, 2nd paragraph, 9th line, read “明らかとなった。” for “明らかと。なった”。

Nakabo et al.: page 290, right column, abstract in Japanese, 6th line, read “朝鮮鱒” for “朝鮮鱒行”。