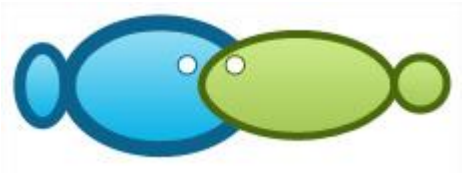

Distributional notes of the crested hairtail, *Tentoriceps cristatus* (Klunzinger, 1884) from Spermonde Archipelago, South Sulawesi, Indonesia

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Abstract. One specimen (570.0 mm in standard length) of *Tentoriceps cristatus*, belonging to the family Trichiuridae, was newly collected in a local fish market in Makassar, South Sulawesi, constituting a first record for the species in the Indonesian archipelago. We suggest "layur kakak tua", a translation of its existing common name "ribbon fish" and parrot-like dorsal profile of head, for the Indonesian species names.

Key Words*:* new record, Trichiuridae, first record, layur kakak tua, ribbon fish.

Introduction. The family Trichiuridae is widely distributed from tropical to warm temperate waters (Burhanuddin & Iwatsuki 2003; Nakamura & Parin 1993). Characters of this family include very elongate and strongly compressed body, large mouth, jaws not protractile, lower jaw extends anterior to upper jaw. Teeth extremely strong, fang-like in anterior part of upper jaw and sometimes in anterior part of lower jaw and lower jaw protruding than upper jaw, and dorsal fin extremely long based, with spines and soft rays (Burhanuddin et al 2002; Nelson 2006).

The crested hairtail, *Tentoriceps cristatus* (Klunzinger), was originally described from the Red Sea (Burhanuddin & Parin 2008; Klunzinger 1884). Then, this species is now known to distribute in Indo-West Pacific Ocean including East China Sea, Japan, Philippines and North Australia (Eschmeyer 2013). Recently, one specimen of *T. cristatus* was caught from the Makassar Waters, South Sulawesi on April 2015. Here, we describe the morphological characters of *T. cristatus* as an addition to the list of Indonesian fishes.

Material and Method. One specimen of *T. cristatus* was found at the Rajawali local fish market, Makassar, South Sulawesi. The specimen had been collected by hook and line on vessels that frequently fish as far as the Spermonde Archipelago, South Sulawesi. Counts and measurements generally followed the method of Hubbs & Lagler (1964). Counts of vertebrae column followed Burhanuddin et al (2002). Tissue was collected from the dorsal fin of the specimen and preserved in 96% ethanol. The present tissue sample and specimen were deposited at the Laboratory of Marine Biology, Faculty of Marine Science and Fisheries Hasanuddin University, Indonesia. Molecular identification of the specimen was conducted using the polymerase chain reaction (PCR) of a 651 bp DNA fragment of the mitochondria cytochrome oxidase subunit I (mtCOI). DNA was extracted using 10% Chelex solution (Walsh et al 1991) and PCR performed using a M13-tailed universal fish primer cocktail VF2_t1, FishF2_t1, Fishr2_t1 (Ward et al 2005). The DNA sequence of the mtCOI gene obtained from the present specimen was compared to that of *T. cristatus* (KP267579) deposited at the DNA Data Bank of Japan (DDBJ). The genetic variation

among sequences was assessed by eye using the program Molecular Evolutionary Genetic Analysis-MEGA 5.1. (Tamura et al 2011).

Material examined. MSFUH00069, one specimen, 570.0 mm SL, hook and line, off Spermonde Archipelago, South Sulawesi, Indonesia, April 2015 (Figure 1).

Trichiurus cristatus (Klunzinger 1884): 120 (type locality: Kosseir, Red Sea Coast of Egypt). *Tentoriceps cristatus* (Nakamura 1984): 228 (Japan); Mohsin & Ambak 1996): 527 (Malaysia); Randall & Lim (2000): 643 (South China Sea); Kim et al (2014): 236 (Korea). Parin & Mikhailin (1982), Yang (1974), Lee at al (1977).

Figure 1. *Tentoriceps cristatus*, MSFUH00069, 570.0 mm SL, Spermonde Archipelago, South Sulawesi, Indonesia (original).

Description. Counts and measurements are shown in Table 1. Body extremely elongated, tapering to a point; upper profile of head convex, a steep continuous curve from the tip of snout to the origin of the dorsal set at about 40^{o} to longitudinal axis; head small; interorbital space convex; eye somewhat large and situating at middle part of head; nostrils positioning in front of eye; mouth large, slightly oblique, end of upper jaw extending below posterior part of eye, lower jaw more projecting than upper jaw, 3 pairs of fangs at tip of upper jaw. A pair of canines at front of both jaws; lower jaw with 2 rows soft teeth, but no enlarged canines at mid-side of jaw. Pectoral fins short and rounded, the middle rays longest, sub equal to pelvic fins, 2.4 times in head length. Caudal fin absent and pelvic fin modified into a scale-like process. Pectoral fin is not reaching lateral line due to its short length.

Color. In fresh specimen, the body is generally silvery white; head and interorbital region dark; tip of upper and lower jaw black; dorsal fin base and its terminal part black pectoral and pelvic fin white, becoming silvery gray with dark cloud-like patches after death.

Table 1

Comparison of morphological characters of *Tentoriceps cristatus*

Morphological characters	*Present study*	*Klunzinger (1884)*	*Senta (1975)*	*Kim et al (2014)*
Number of specimens	1	9	50	1
Total length (mm)	605.0	?	283.0-633.0	619.0
Counts		-		
Dorsal fin rays	V, 135		V, 126-144	V, 131
Anal fin rays	II	-	II, 82-91	II
Pectoral fin rays	11	-	-	11
Pelvic fin rays	1	-	1	1
Gill rackers	4+10	-	2-6+7-11	3+9
Vertebrae	50+110=160	-	45-48+105-117=152-164	49+112=161

Distribution. The present species was first reported from the Red Sea (Klunzinger 1884). This species is known to inhabit depths in the range of 140–367 m, from the Western Pacific to French Polynesia, Ryukyu Island, Okinawa, the Great Barrier reef, Taiwan Province of China, South China Sea, Marina Island, Society Island, Cook Islands,

American Samoa, Fiji, Tuamotus, and the Philippine Sea (Nakamura & Parin 1993; Eschmeyer 2013), Korea (Kim et al 2014). The specimen utilized in this report was collected by hook and line in the sea off Spermonde Archipelago, South Sulawesi, Indonesia.

Remarks. The morphological characteristics of the present specimen agreed well with those of *T. cristatus* having an extremely elongated body, having lateral line running almost straight mid laterally nearer the ventral than the dorsal contour; the interorbital convex, posterior end of opercle acutely elliptical, reaching to middle of pectoral base; pectoral fin short and not reaching at lateral line, pelvic fin reduced to a scale-like process and caudal fin absent (Senta 1975; Nakamura & Parin 1993; Nakabo 2002; Nelson 2006). Also, the meristic characters of the present specimen were compared with those of *T. cristatus* previously reported by other researcher (Parin & Mikhailin 1982; Yang 1974; Lee at al 1977) (Table 1), although several taxonomically important meristic characters of type specimen were not examined by Klunzinger (1884). In addition, we adopted molecular identification method based on COI DNA sequences to make sure of the accurate species identification. The result indicated that COI sequence of present specimen was almost identical (99%) to that of *T. cistatus* from DNA Data Bank of Japan (DDBJ). One specimen of *T. cristatus* (Trichiuridae) which was presented in this study provides new knowledge about their specific distribution and gave a new country record for this species.

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References

Burhanuddin A. I., Iwatsuki Y., 2003 *Trichiurus nickolensis,* a new hairtail from Australia belonging the *Trichiurus brevis* complex (Perciformes: Trichiuridae). Ichtyological Research 50:270-275.

Burhanuddin A. I., Iwatsuki Y., Yoshino T., Kimura S., 2002 Small and valid species of *Trichiurus brevis* Wang and You, 1992 and *T. brevis* Dutt and Thankam 1966, defined as the *"T. brevis complex"* (Perciformes: Trichiuridae). Ichthyological Research 49:211-223.

Burhanuddin A. I., Parin N. V., 2008 Redescription of the trichiurid fish, *Trichiurus nitens* Garman, 1899, being a valid of species distinct from *T. lepturus* Linnaeus, 1758 (Perciformes: Trichiuridae). Ichthyology 48:825. DOI. 10.1134/S003294520810 0019.

Eschmeyer W. N. (ed), 2013 Catalog of fishes electronic version. Available at: http//research.calacademy. org/ichthyology/catalog/fishcatmain.asp.

Hubbs C. L., Lagler K. F., 1964 Fishes of the Great lake region. Bulletin of the Cranbrook Institute of Science 26:19-27.

Kim M. J., Jun C. K., Chon B. S., 2014 First record of crested hairtail, *Tentoriceps cristatus* (Perciformes: Trichiuridae) from Korea. Korean Journal of Ichthyology 26:235-238.

Klunzinger C. B., 1884 Die Fische des Rothen Meeres. E. Schweizerbart'sche Verlagshanding (E. Koch), Stutt- gart, ix+1-133.

Mohsin A. K. M., Ambak M. A., 1996 Marine fishes and fisheries of Malaysia and neighboring countries. University of Pertanian Malaysia Press, Serdang, Malaysia, 744 p.

Lee S. C., Chang K. H., Wu W. L., Yang H. C., 1977 Formosan ribbonfishes (Perciformes: Trichiuridae). Bulletin of the Institute of Zoology, Academia Sinica 16:77-84

Nakabo T., 2002 Trichiuridae. In: Fishes of Japan with pictorial keys to the species. Nakabo T. (ed), pp. 1342-1345, English edition, Tokai University Press, Tokyo, Japan.

Nakamura I., 1984 Family Trichiuridae. In: The fishes of the Japanese Archipelago. Masuda H., Amaoka K., Araga C., Uyeno T., Yoshino T. (eds), p. 109, Tokai University Press, Tokyo, Japan.
Nakamura I., Parin N. V., 1993 FAO species catalog. Snake mackerels and cutlassfishes of the world (families Gempylidae and Trichiuridae). FAO, Rome, 125:136.
Nelson J. S., 2006 Fishes of the world. 4th edition, John Wiley and Sons, Inc., Hoboken, New Jersey, 601 p.
Parin N. V., Mikhailin S. V., 1982 *Lepidopus calcar*, a new trichiurid fish from the Hawaiian underwater ridge. Japan Journal of Ichthyology 29(1):27-30.
Randall J. E., Lim K. K. P., 2000 A checklist of the fishes of the South China Sea. The Raffles Bulletine of Zoology Supplement 8:569-667.
Senta T., 1975 Redescription of trichiurid fish, *Tentoriceps cristatus* (Klunzinger) and its occurrence in South China Sea and the straits of Malacca. Japan Journal of Ichthyology 21:175-182.
Tamura K., Peterson D., Peterson N., Stecher G., Nei M., Kumar S., 2011 MEGA5: Molecular evolutionary genetics analysis using maximum likelihood, evolutionary distance, and maximum parsimony methods. Molecular Biology and Evolution 28:2731-2739.
Walsh P. S., Metzger D. A., Higuchi R., 1991 Chelex-100 as a medium for simple extraction of DNA for PCR-based typing from forensic material. Bio Techniques 10:506-513.
Ward R. D., Zemlak T. S., Innes B. H., Last P. R., Hebert P. D. N., 2005 DNA barcoding Australia's fish species. Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences 360:1847-1857
Yang H. C., 1974 [Fishery biology of the ribbon fishes. III. Morphological notes on the ribbon fish of the genus *Tentoriceps* from Taiwan]. Uo 23:5-19. [In Japanese].

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