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First record of *Tetragonurus cuvieri* Risso, 1810 (Tetragonuridae) from the Eastern Mediterranean

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Abstract

A single specimen of the smalleye squaretail, *Tetragonurus cuvieri* Risso, 1810, (39.2 cm in total length) was caught with a commercial trammel net at a depth of 550 m in January 2022 from Mersin Bay (NE Mediterranean, Turkey). This is the first record of *T. cuvieri* in the Northeastern Mediterranean, Turkey. Morphological measurements of the specimen were made and recorded with the catalog number (MEUFC-22-11-134) in the Museum of Marine Life, Mersin University.

Keywords: New Record, Smalleye squaretail, Levantine Basin, Turkey.

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Introduction

The genus *Tetragonurus* Risso, 1810 (Tetragonuridae: Scombriformes) is represented by three valid species in the oceanic waters, namely smalleye squaretail, *Tetragonurus cuvieri* Risso, 1810, bigeye squaretail, *T. atlanticus* Lowe, 1839, and Pacific squaretail, *T. pasificus* Abe, 1953 (Froese and Pauly 2022). Smalleye squaretail is an oseanodrom species (Riede 2004), distributed in the Eastern Pacific, Western Pacific, Western Indian Ocean, Atlantic Ocean, and the Mediterranean (Hart 1973; Haedrich 1986a; Masuda et al. 1984; Pequeño 1989).

So far, this species has been rarely found in the Mediterranean, and it was only records in the western and central Mediterranean (D'ancona and Razzauti 1937; Campi 1963; Cau 1980; Emery 1882; Sarà and Sarà 1990; Basanisi et al. 1999; Ragonese and Giusto 2003; Psodomakiset al., 2006; Carnevale et al. 2021; Tsagarakis et al. 2021). In Turkish waters, *T. cuvieri* was not previously reported from the Mediterranean Sea (Bilecenoglu et al. 2014). Therefore, this work aimed to report the first record of *T. cuvieri* from the Levant Basin, Northeast Mediterranean, Turkey.

Materials and Methods

One specimen of *T. cuvieri* was collected by bottom trawl at Mersin Bay (Levantine Basin, NE Mediterranean), Turkey, at a depth 550 m on 11 January 2022 (Coordinates: 35º 59.780' N, 33º 27.012' E) (Fig. 1). Morphometric measurements of the specimens were made to the nearest 0.01 mm using a digital caliper. All measurements, counts, morphological descriptions, and colors agree with the descriptions given by Haedrich (1986a) and Haedrich (1990). The captured individual was recorded in the Museum of Marine Life, Mersin University, with the catalog number MEUFC-22-11-134 (Fig. 2).

Results

The smalleye squaretail is recognized by its distinctive jaws, scalation, and body form. The lower jaw is very stout and has a single row of fan-like teeth. It is almost totally concealed by the upper jaw when the mouth is

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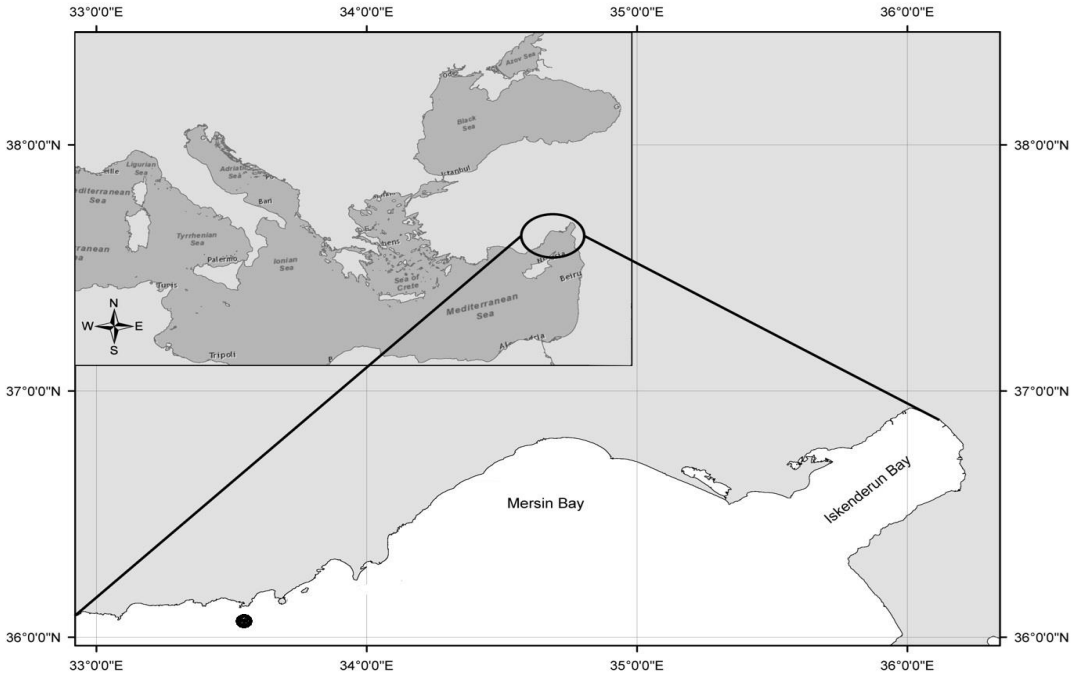

Figure 1. Sampling point (●) of Tetragonurus cuvieri in the Mersin Bay (NE Mediterranean Sea.

Figure 2. Specimen of Tetragonurus cuvieri, 39.2 cm TL, from Mersin Bay (MEUFC-22-11-134).

closed. The upper jaw has small pointed teeth in a single row. When viewed from the front, the mouth opening is diamond-shaped (Haedrich 2003; Hoese et al. 2006).

The Mediterranean specimen is described as follows: Dorsal fin rays, XV+12, Anal fin rays, I+11. It has a long body that is slender and rounded in cross-section. Body depth is 13.2% of total length (TL). Head length is 15.6% in TL. Eye diameter is 19.6% all-in head length. There are small, ridged scales arranged in spirals around the body. The pectoral and pelvic fins are small. The caudal peduncle is rectangular in cross-section and has two lateral keels on both sides. Adult specimens are uniformly dark brown to black. Head and caudal fin base are lighter (Hart 1973). The juveniles are grey above and whitish below. This is probably an adaptation to the deepwater habitat of the adult and the surface habitat favored by juveniles.

Discussion

Smalleye squaretail is usually found near the surface or bottom in oceanic waters between depths of 1-800 m (Haedrich 1990). Adults commonly live in continental slope waters at depths from 500 to 600 m (Gomon et al. 1994; May and Maxwell 1986). It reaches 70 cm in maximum total length (Haedrich 1986). It feeds on jellyfish and tunicates (Eschmeyer et al. 1983) and consumes coelenterates, ctenophore, and plankton. Carnevale et al.

Figure 3. Individuals from populations of Lessepsian jellyfish *Rhopilema nomadica* caught in trawling with *Tetragonurus cuvieri*.

(2021) reported that young individuals of the species live together with pelagic tunicata such as *Salpa* and *Pyrosoma* (in their nests), while adults live alone.

According to Tortonese (1970), this species is rarely found in the Mediterranean because of its habit of living alone in adults. In previous studies, it was reported from the Central and Western Mediterranean, caught from different depths. Ragonese and Giusto (2003) reported that during the breeding season, vulnerable females move upwards in the water column when they are not hunting.

Tetragonurus cuvieri has not been listed in the latest cheaklist of Turkey (Bilecenoglu et al. 2014). In this study, the specimen of *T. cuvieri* caught during the red shrimp fishing in Mersin Bay had a total length of 39.2 cm and a weight of 391 g. Ragonese and Giusto (2003) reported the specimen of *T. cuvieri* was 35.4 cm in total length and 252 g in total weight from the Strait of Sicily (Mediterranean Sea). However, our present length and weight data for this specimen are found longer and higher than the previous record for Mediterranean (Ragonese and Giusto 2003). In addition, a dense population of Lessepsian jellyfish, *Rhopilema nomadica* was observed in the area where the individual was sampled (Fig. 3). It is also known that young individuals are usually among jellyfish or in large salps (Eschmeyer et al. 1983). Since jellyfish constitute one of the food items of this fish species, it is thought that this individual is probably from this region for feeding purposes. Although this species is not considered an economic species, it is known that the meat of this species is poisonous (Haedrich 1986b; Haedrich 2003) as a ciguatera poisoning (Halstead et al. 1990).

The species is quite rare in the Mediterranean. Indeed, few records are reported from the western and central Mediterranean in the last century (D'ancona and Razzauti 1937; Campi 1963; Cau 1980; Emery 1882; Sarà and

Sarà 1990; Basanisi et al. 1999; Ragonese and Giusto 2003; Psomadakis et al., 2006; Carnevale et al. 2021; Tsagarakis el al. 2021).

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Literature cited

Basanisi M., Megli F., Panza M., Carlucci R. 1999. Primo rinvenimento di *Tetragonurus cuvieri* (Risso, 1810) (Osteichthyes: Tetragonuridae) nel Mar Ionio. Biologia Marina Mediterrranea 6: 521-523.

Bilecenoğlu M., Kaya M., Cihangir B., Çiçek E. 2014. An updated checklist of the marine fishes of Turkey. Turkish Journal of Zoology 38(6): 901-929.

Campi A. 1963. Elenco di catture di interessanti forme ittiche nelle acque del Finalese (Savona). Natura 54(1): 8-10.

Carnevale A., Giglio G., Leonetti F.L., Lanteri L., Milazzo C., Tripepi S., Sperone E. 2021. First documented record of smalleye squaretail *Tetragonurus cuvieri* Risso, 1810 (Perciformes, Stromatoidea) along Calabrian coasts (Southern Italy, Central Mediterranean). Acta Adriatica 62(1): 105-110.

Cau A. 1980. Secondo contributo alla conoscenza dell'ittiofauna batiale dei mari circostanti la *Sardegna meridionale* (Osteichthyes). Quad. Civica Staz. Idrobiol. Milano 8: 39-44.

D'ancona U., Razzauti A. 1937. Pesci e pesca nelle acque dell'Arcipelago Toscano. Rapports et procès-verbaux des réunions Commission internationale pour l'exploration scientifique de la Mer Méditerranée 11: 129-144.

Emery C. 1882. Contribuzioni all'Ittiologia. IV. Sulle condizioni di vita di giovani individui di *Tetragonurus cuvieri*. Mittheilungen aus der Zoologischen Station zu Neapal 3: 281-282.

Eschmeyer W.N., Herald E.S., Hammann H. 1983. A field guide to Pacific coast fishes of North America. Houghton Mifflin Company. Boston, MA, USA. 336 p.

Froese R., Pauly D. 2022. FishBase. World Wide Web electronic publication. Available from: www.fishbase.org, version (02/2022). Retrieved 01/04/2022

Gomon M.F., Glover C.J.M., Kuiter R.H. 1994. The fishes of Australia's south coast. State Print, Adelaide. 992 p.

Haedrich R.L. 1986a. Tetragonuridae. In: M.M. Smith, P.C. Heemstra (Eds.). Smiths' sea fishes. Berlin, Springer-Verlag, pp: 851-852.

Haedrich R.L. 1986b. Tetragonuridae. In: P.J.P. Whitehead, M.L. Bauchot, J.C. Hureau, J. Nielsen, E. Tortonese (Eds.). Fishes of the north-eastern Atlantic and the Mediterranean. Vol. 3. Paris. UNESCO. pp: 1189-1191.

Haedrich R.L. 1990. Tetragonuridae. In: J.C. Quéro, J.C. Hureau, C. Karrer, A. Post, L. Saldanha (Eds.). Check-list of the fishes of the eastern tropical Atlantic (CLOFETA). Paris. JNICT, Lisbon; SEI, Paris; and UNESCO, Vol. 2. pp: 10-22.

Haedrich R.L. 2003. Tetragonuridae. In: K.E. Carpenter (Ed.). The living marine resources of the Western Central Atlantic, Rome. FAO. 1878 p.

Halstead B.W., Auerbach P.S., Campbell D.R. 1990. A colour atlas of dangerous marine animals. Wolfe Medical Publications Ltd, W.S. Cowell Ltd, Ipswich, England. 192 p.

Hart J.L. 1973. Pacific fishes of Canada. Bulletin of the Fisheries Research Board of Canada 180: 1-740.

Hoese D.F., Bray D.J., Paxton J.R., Allen G.R. 2006. Fishes. In: P.L. Beesley, A. Wells. (Eds.). Zoological Catalogue of Australia. Vol. 35. ABRS & CSIRO Publishing, Australia. pp: 1-2178.

Masuda H., Amaoka K., Araga C., Uyeno T., Yoshino T. 1984. The fishes of the Japanese Archipelago. Vol. 1. Tokai University Press, Tokyo, Japan. 437 p.

May J.L., Maxwell J.G.H. 1986. Field guide to trawl fish from temperate waters of Australia. CSIRO. 492 p.

Pequeño G. 1989. Peces de Chile. Lista sistematica revisada y comentada. Universidad de Valparaíso, Revista de Biologia Marina 24(2): 1-132.

Psomadakis P.N., Scacco U., Vacchi M. 2006. Recent findings of some uncommon fishes from the central Tyrrhenian Sea. Cybium 30(4): 297-304.

Ragonese S., Giusto G.B. 2003. First record of *Tetragonurus cuvieri* (Perciform, Stromateoidei) in the Strait of Sicily

(Mediterranean Sea). Vie Milieu 53(2-3): 119-122.

Riede K. 2004. Global register of migratory species - from global to regional scales. Final Report of the R&D-Projekt 808 05 081. Federal Agency for Nature Conservation, Bonn, Germany. 329 p.

Sarà R., Sarà M. 1990. La collezione ittiologica Doderlein del museo di Zoologia di Palermo. Museo dello Sci 6: 1-23.

Tsagarakis K., Darmanin S. A., Al Mabruk S., Auriemma R., Azzurro E., Badouvas N., Bakiu R., Bariche M., Battaglia P., Betti F., Borme D., Cacciamani R., Cali F., Corsini-Foka M., Crocetta F., Dalyan C., Deidun A., Digenis M., Domenichetti F., Dragičević B., Dulčić J., Durucan F., Guyhaim T., Kesici N., Lardi P., Manitaras Y., Michailidis N., Piraino S., Rizgalla J., Siapatis A., Soldo A., Stipa M. G., Terbiyik Kurt T., Tiralongo F., Tsiamis K., Vella A., Vella N., Zava B., Gerovasileiou V. 2021. New records of rare species in the Mediterranean Sea (October 2021). Mediterranean Marine Science 22(3): 627-652.

Tortonese E. 1970. Fauna d'Italia. Osteichtyes. Pesci ossei. (Prima parte). Ed Calderini Bologna. 636 p.