

SHORT COMMUNICATION

Additional record of *Trypauchen vagina* (Bloch & Schneider, 1801) from Mersin Bay, Turkey.

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ABSTRACT

Two mature individuals of *Trypauchen vagina* were caught by trawl fishing at 30 m depth in the Mersin coastal areas in September 2018. Meristic and morphometric measurements of the individuals were done and compared with its measurements reported in other studies. In previous studies; one record from Mersin Bay and in totally three records of *T. vagina* in the Northeastern Mediterranean Sea were reported. In this study, the second record of *T. vagina* was reported from Mersin Bay.

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Introduction

Trypauchen vagina (Bloch and Schneider, 1801) is an amphidromous fish belonging to the family Gobidae and is tropical and Indo-Pacific origin, living in muddy bottoms from sea to brackish waters (Rainboth, 1996; Riede, 2004). Records of the species from the Pacific are as follows: China (Herre, 1927), various regions of Indonesia (Bleeker, 1860; Kottelat et al., 1993), Philippines (Herre, 1953), Caledonia (Kulbicki et al., 1993), Taiwan (Chen and Fang, 1999), the Mekong Delta (Rainboth, 1996; Dinh, 2018a) and the Hau River (Dinh, 2018b). Records of the species from the Indian Ocean are

as follows: India (Hora, 1924), the Bombay coasts (Acharya and Dwivedi, 1984), South Africa (Kottelat et al., 1993), Persian Gulf (Alavi-Yeganeh et al., 2015), the marine waters of Iraq (Al-Daraji et al., 2017), the Narmada River (Thakkar et al., 2018), between the Indian and Pacific waters of Thailand (Fowler, 1935; Smith, 1945), and Singapore (Larson and Lim, 2005). Records of the species from the Mediterranean Sea are as follows: Iskenderun Bay (Akamca et al., 2011), Israel coasts (Salameh et al., 2010) and Mersin Bay (Yaglioglu et al., 2013). According to the reports, all individuals observed in the Mediterranean Sea were found in the northeastern part of sea. This species has only distribution in the Northeastern Mediterranean Sea.

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There is no record of the species from the Red Sea. According to some researchers, this species has been transported to the Northeastern Mediterranean Sea by ballast waters (Golani, 2004; Goren et al., 2009; Salameh et al., 2010).

The burrowing goby is located at the depths of 20-90 m in the coastal waters (Murdy, 2006; Salameh et al., 2010; Akamca et al., 2011; Yaglioglu et al., 2013). It reaches to the maximum total length of 22 cm (Talwar and Jhingran, 1991). Their body shape is flattened and elongated, with red-pink color and their fins except pectoral fin are transparent whitish. Their dorsal and anal fins are combined with caudal fin. The meristic measurements of this species are D, 50-58, A, 43-50, P, 15-20. The number of scale on the lateral line ranges from 69 to 98. The number of caudal vertebrae is 23-24. The morphometric characters were as follows: SL/TL: 0.815-0.938, HL/SL: 0.161-0.179, predorsal length/SL: 0.188-0.218, prepelvic length/SL: 0.157-0.175, preanal length/SL: 0.308-0.362. Their eyes are almost completely blind as they are covered with skin (Bauchot et al., 1989). There are 8-13 teeth in the lower jaw and 4-16 teeth in the upper jaw. They are carnivores. They usually feed on small invertebrates and crustaceans (Rainboth, 1996; Murdy, 2006).

The aim of this study is to report the presence of adults' specimen *T. vagina* from the Northeastern Mediterranean Sea and to determine current status of this species in the Levantine basin.

Material and Methods

Two individuals of *T. vagina* were caught by trawl fishing at a depth of 30 m on 18 September 2018 in Mersin Bay (Northeastern Mediterranean Sea) (coordinate: 36°37'54.4" N, 34°50'27.4" E). These specimens were preserved in 4% formalin and were deposited in the Museum of the Systematic, Faculty of Fisheries, Mersin University, (catalogue number: MEUFC-18-11-080). Morphometric and meristic characteristics of these individuals were measured (Table 1) and sampling point of the species in the Mediterranean Sea is presented in the map in Figure 1. Photograph of one of the individuals is shown in Figure 2.

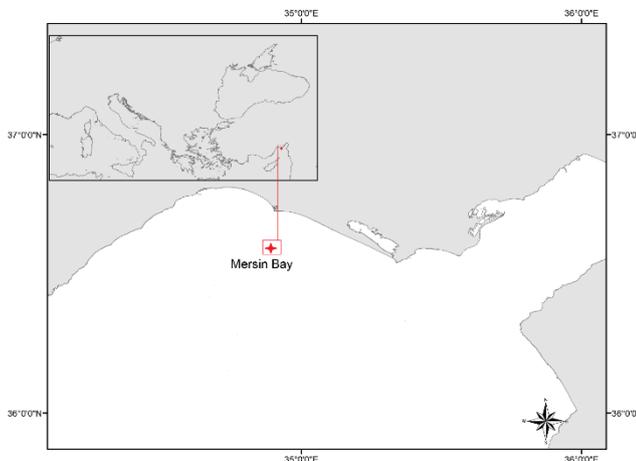


Figure 1. Sampling area (The red mark indicates the location where the specimens were caught)



Figure 2. An individual of *T. vagina* caught from Mersin Bay (Photographed by Deniz AYAS)

Results

Two individuals of *T. vagina* were caught using trawl fishing at 30 m depth in Mersin Bay in September 2018. In this study, the second record from Mersin Bay and third record from Mediterranean Sea of *T. vagina* was reported. Meristic and morphometric measurements of the individuals were done. The total lengths of individuals were recorded as 202 and 185 mm, respectively. The sampled individuals are close to the reported maximum total length of the species.

Discussion

When the measurements of individuals caught from Mersin Bay are compared with those in previous studies, it can be seen that meristic and morphometric measurements of individuals in the present study are compatible with each other (Table 1). This situation was caused by close total lengths of individuals in all studies.

The color of the individuals caught from Mersin Bay was red, pink and the fins outside the pectoral fin were transparent, almost white. The dorsal and anal fins were combined with the caudal fin. Their eyes are almost completely blind as they are covered with skin.

It has been reported that the distribution depth of *T. vagina* in the literature is between 20-90 m (Murdy, 2006; Salameh et al., 2010; Akamca et al., 2011; Yaglioglu et al., 2013). However, it was caught at depths of 4-4.6 m on the coast of India (Thakkar et al., 2018). In this study, individuals from 30 meters were caught and this depth was consistent with the distribution depth of individuals reported in the Northeast Mediterranean Sea.

The maximum length of the species in the literature is 22 cm (Talwar and Jhingran, 1991). The lengths of individuals reported in the Northeast Mediterranean Sea (Akamca et al., 2011; Yaglioglu et al., 2013) and individuals caught in this study are similar to its maximum length. In this case, all individuals reported in the Northeast Mediterranean Sea were adults.

It is reported that the species has no record in the Red Sea and that it has been transported to the Mediterranean Sea by ballast waters (Golani, 2004; Goren et al., 2009; Salameh et al., 2010). The frequency of recording of this species is increasing in the Northeastern Mediterranean Sea day by day. If this species did not come from the Red Sea with the Lessepsian migration, this may suggest that the species has formed a population in the Northeastern Mediterranean Sea. If one species has formed a population in a region, it should also be possible to observe immature individuals in the region.

Table 1. The comparison of meristic and morphometric measurements of *T. vagina*

Parameters	Mersin Bay – NE Mediterranean Sea (Present study)			Iranian Coast –Persian Gulf (Alavi-Yeganeh et al., 2015)	Mediterranean Sea (Murdy, 2006)	NE Mediterranean Sea (Akamca et al., 2011)
	First	Second	Mean			
	Individual	Individual				
TL	202	185	193.5	–	–	210-217
SL	185	165	175	–	–	189-196
SL/TL	0.92	0.89	0.90	0.89	0.855	0.90-0.93
HL/SL	0.14	0.15	0.14	0.153	0.169	0.147-0.148
PEL/SL	0.06	0.06	0.06	0.054	0.060	0.046-0.049
PEL/HL	0.42	0.40	0.41	0.352	0.354	0.312-0.329
PEC/SL	0.05	0.06	0.05	0.046	0.053	0.043-0.051
PEC/HL	0.36	0.40	0.38	0.301	0.315	0.294-0.346
PEC/PEL	0.86	1.00	0.93	0.873	0.921	0.943-0.1051
Snout length/SL	0.05	0.03	0.04	0.040	0.048	–
Interorbital length/SL	0.03	0.03	0.03	0.026	0.027	–
Body depth/SL	0.10	0.10	0.10	0.107	0.107	0.106-0.109
Predorsal length/SL	0.18	0.21	0.19	0.206	0.202	0.195-0.205
Prepelvic length/SL	0.19	0.21	0.20	0.158	0.165	0.163-0.165
Preanal length/SL	0.32	0.32	0.32	0.348	0.345	0.341-0.352
D	55	–	55	54-57	50-58	57-58
A	44	–	44	43-47	43-50	45-48
Pec	17	–	17	16-17	15-20	–

Note: TL indicates total length, SL indicates standard length, HL indicates head length, PEL indicates pelvic fin, PEC indicates pectoral fin, D indicates dorsal fin, A indicates anal fin, and Pec indicates pectoral fin soft rays. Also, the units for parameters are measured in nearest mm.

Until now, the presence of only adult individuals in the records made so far have weakened the idea that *T. vagina* form a population in the Northeastern Mediterranean Sea. Besides, it is not clear whether the individuals which were caught in every new record from the region came with ballast waters. Therefore, the species is likely to be located in the Red Sea and a more detailed research in the region is required.

Conclusion

Since there is no record of the species in the Red Sea, it has been reported by some researchers that sea transport has a role in its presence in the Northeastern Mediterranean Sea. However, the recordings of *T. vagina* in the Northeastern Mediterranean Sea, which is influenced by Lessepsian migration, strengthen the view that the species could have passed from the Red Sea to the Northeastern Mediterranean Sea. The absence of this species in the Red Sea does not mean that this species is not distributing in the Red Sea. The fact that the captured individuals were close to its maximum length indicates that the Lessepsian migration continues. Furthermore, the absence of immature individuals in the region indicates that the species has not yet been able to form a population in the Northeast Mediterranean Sea. In this case, there is a high probability that there is a distribution of this species in the Red Sea. This paper contributes to the literature by providing the recent knowledge on the presence, bathymetric distribution, morphometric and meristic characteristics of *T. vagina* in the coastal waters of Mersin Bay in the north-eastern part of the Mediterranean Sea.

Conflict of Interest

The authors declare that there is no conflict of interest.

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