



- **SHORT COMMUNICATION** -

First record red lionfish *Pterois volitans* (Linnaeus, 1785) in the Mediterranean Sea

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Abstract

A single male specimen of red lionfish *Pterois volitans* was recorded for the first time in 13 May 2016 from the Iskenderun Bay, North-eastern Mediterranean, Turkey. The present paper also reports the first record of the red lionfish *P. volitans* along the Mediterranean Sea.

Keywords:

Red lionfish, *Pterois volitans*, Mediterranean Sea, Turkey

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Introduction

To date the Suez Canal has supplied the largest number of successfully established alien species in the Mediterranean Sea (Turan, 2010; Galil et al., 2016). The numbers of alien species which have been recorded in the Mediterranean over the past century have relatively increased in recent decades.

The genus *Pterois* is represented with 10 valid species in the world (Froese & Pauly, 2016). Lionfish are mostly found in warm marine waters at depths from 1 to 300 feet on hard

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bottom, mud bottoms, mangroves, sea grasses, coral reef, and artificial reefs (Albins & Hixon, 2008; Ferreira, 2015). The introduction of invasive alien species is a major threat to ecosystem biodiversity, structure and function. Marine invasions may have economic and human health implications (Charles & Dukes, 2007; Otero et al., 2013). The high feeding rates of lionfish pose a serious threat to its benthic ecosystems (Morris & Akins, 2009; Kulbicki et al., 2012; Higgs, 2013).

The red lionfish *Pterois volitans* (Linnaeus, 1758) is distributed in the Pacific Ocean (North and South), Atlantic Ocean (North and South) and also found in the Indo-West Pacific Ocean (Schultz, 1986; Whitfield et al., 2002; Kimball et al., 2004; Froese & Pauly, 2016).

Although *P. volitans* has occurred in the Indo-Pacific and Atlantic, up to now, this species has not been reported along the Mediterranean marine waters. Therefore, the present paper gives the first report of *P. volitans* in the Mediterranean Sea.

Material and Method

Red lionfish *Pterois volitans* was caught off the Arsuz coast in the Iskenderun Bay, Turkey ($36^{\circ} 26' 34''$ N, $35^{\circ} 49' 47''$ E) on May 13, 2016. The picture of the captured specimen is given in Figure 1. The fish was captured by a commercial purse seine at 30 m depth on a rocky/sandy bottom. The specimen was preserved in deep-freezer and deposited in the Museum of the Faculty of Marine Sciences and Technology, Iskenderun Technical University (MSM-PIS/2016-6) (Figure 2). All morphometric measurements were made to the nearest 0.01 mm using dial calipers. Morphological and taxonomic descriptions and color of the captured specimen were followed by Schultz (1986) and Paulin (2012).

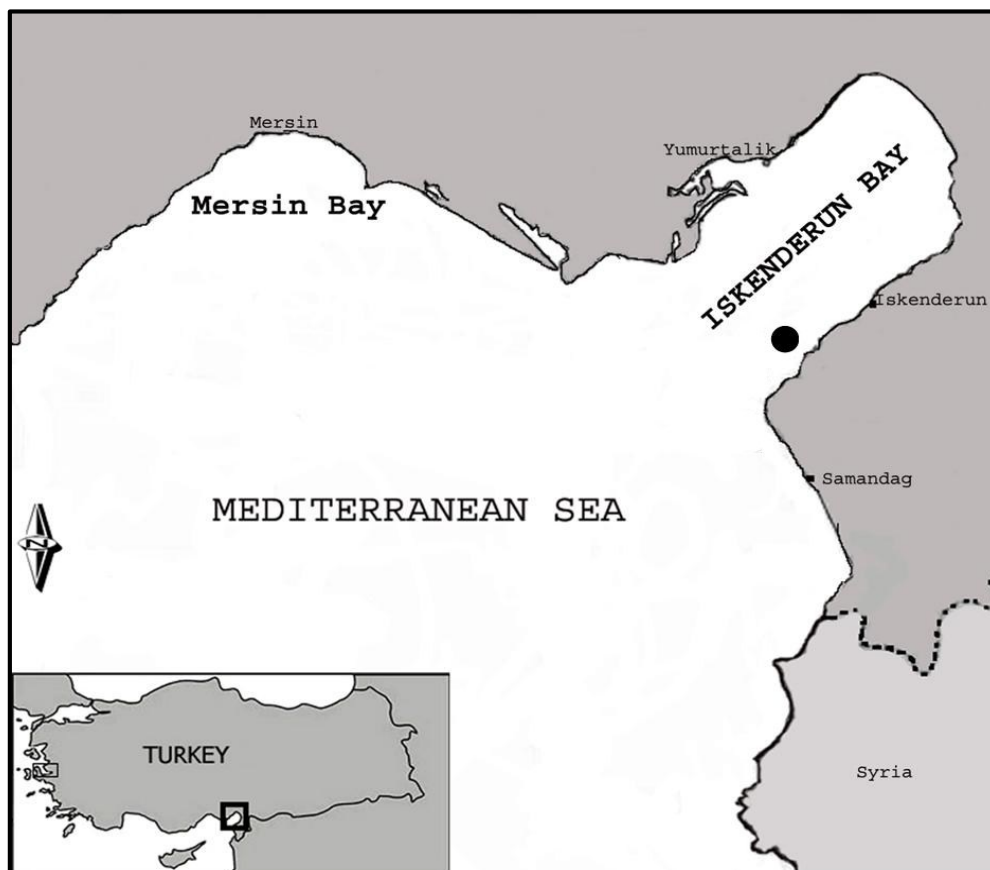


Figure 1. Sampling location (●) of *Pterois volitans*.

Result

The main meristic counts and measurements are given in millimeters followed in parentheses by the percentage of total length: dorsal spin rays: XIII; dorsal fin rays: 7; anal spin rays: III; anal fin rays: 7; pectoral fin rays: 14; pelvic spin rays: I; pelvic spin rays: 5; caudal fin rays: 14; weight: 122,63 gr; total length: 222; standard length: 171 (77.02); head length 6.06 (2.73); pectoral fin length 12,16 (57.77), body depth 5.53 (24,90). Male testes were observed in the specimen. The red lionfish *P. volitans* has greatly elongated dorsal-fin spines. There is a connecting tissue in between the spines of the pectoral fin rays. *P. volitans* has a long pectoral fin and membranes of all fins are spotted. The head and body is cream colored to red to reddish-brown vertical stripes. Eight small white spots are present on lateral line (Figure 2).



Figure 2. Pictures of *Pterois miles* (on top) and *Pterois volitans* (bottom) from the Iskenderun Bay, North-eastern Mediterranean, Turkey

Discussion

The number of new alien fish immigrants in the Mediterranean Sea has rapidly increased in recent years (Gurlek et al., 2016a; Gurlek et al., 2016b; Dođdu et al., 2016). A single specimen of *P. miles* has been reported as the first record from the Mediterranean coast, Haifa Bay in 1991 (Golani and Sonin 1992), and later from Lebanon coast in the Mediterranean Sea (Bariche et al. 2013) and from the northern part of Cyprus (Oray et al.

(2015). A single specimen of *P. miles* was first reported from Turkish marine waters (Turan et al. 2014). In the present study, *P. volitans* is reported for the first time from the Mediterranean Sea with this report. Therefore, the number of *Pterois* species in the Mediterranean Sea has reached to two species, *P. miles* and *P. volitans*.

Pterois volitans can be distinguished from other *Pterois* species with few morphologic features and meristic counts. Although the two species (*P. volitans* *P. miles*) are very similar, the *Pterois miles* have less dorsal and anal fin rays. *P. volitans* has a longer pectoral fin than *P. miles*. The *P. volitans* generally has XIII dorsal spine, 11 dorsal fin rays and 7 anal fin rays; the *P. miles* has XIII dorsal spine, 10 dorsal fin rays and 6 anal fin rays. *P. volitans* has often large tentacles above eyes (Schultz, 1986; Kuitert & Tonozuka, 2001). *P. volitans* can be distinguished from *Pterois antennata* with the main characteristic of the lack of connecting tissue between the spines of the fin rays. The pectoral fins are connected only a short ways out from the body while the dorsal fins are not connected at all. Other differences include the pectoral ray count, which is 14-16 in *P. volitans* and 16-17 in *P. antennata*. The scales of *P. volitans* are cycloid, but in *P. antennata* they are mostly ctenoid (Paulin, 2012).

P. volitans also show close resemblance to *P. russelli*. According to Schultz (1986), the latter species has unspotted soft fins, 13 pectoral rays and larger scales. The spots on the pectoral fins are distinctly different from those on *P. volitans*, being narrow and mostly limited to the rays, not extending down into the adjoining membrane. (Schultz, 1986).

P. volitans most commonly occurring between 2 m and 55 m in the Pasific and Atlantic Oceans (Allen & Steene, 1988). The reported maximum length for *P. volitans* is 38 cm (TL) (Randall et al., 1990; Froese and Pauly, 2016). They commonly feed on small fish, shrimps and crabs. The maximum age for this species is estimated to be ten years (Hinton, 1962; Froese & Pauly, 2016).

With the present report, the lion fish *P. volitans* can now be added to the Turkish fish check-list as a further Scorpaenid species. While one specimen of *P. volitans* do not necessarily indicate the existence of its established population in the Mediterranean Sea. However, the past and present records of lessepsian species suggest that *P. volitans* migrate westward in the Mediterranean Sea (Turan et al., 2016).

The Suez Canal bring negative ecological and socio-economic consequences to the riparian states of the Mediterranean Sea. In order to fight against invasion of non-indigenous species, mostly venomous species like the lionfish, a regional cooperation, a public awareness campaign and an urgent alert system such as AliMed (www.alimed.org) should be established with the help of local and regional funds. Besides, researches are also needed on the negative impacts of lionfish on the habitats.

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