

**-SHORT COMMUNICATION-****Westward Extension of the Lionfish *Pterois volitans* Linnaeus, 1758
along the Mediterranean Coast of Turkey**

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Abstract

One red lionfish (*Pterois volitans*) was caught in the Gulf of Antalya on October 15th 2016. The present study, second record of *P. volitans* was reported in the coast of the Antalya Bay, Turkey. Our study shows that *P. volitans* westward extension along to Turkey Mediterranean coasts.

Keywords:Lionfish, *Pterois volitans*, Westward Extension, Turkey**Article history:**

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Introduction

The Eastern Mediterranean has distinct water characteristics within the Mediterranean ecosystem due to its increased temperature and salinity. This difference has altered biodiversity after the opening of the Suez Channel, through which many marine organisms have been introduced to the Mediterranean ever since. One of these organisms is Lionfish. Lionfishes are generally found in rocky areas in the marine ecosystems (Green and Cote 2009). Lionfishes, *Pterois miles* (Bennett, 1828) and *Pterois volitans* (Linnaeus, 1758), are natives to the Pacific and Indian Oceans (Gardner *et al.* 2015).

So far, two lion fish species have been recorded in the Mediterranean Sea. One of these species is *P. miles* has been the firstly recorded from the Mediterranean coast, Haifa Bay in 1991 (Golani and Sonin 1992), and later two lionfish specimens were reported from Lebanon coast in the Mediterranean Sea (Bariche *et al.* 2013). Two unidentified lionfish specimens were also observed in Cyprus coast by Evripidou (2013). Apart from a single specimen of *P. miles* was captured in Iskenderun Bay (Kaleköy), Northeastern Mediterranean part of Turkey by Turan *et al.* (2014).

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Other records for this species were reported in coast of Northern Cyprus by Oray *et al.* (2015), in the Aegean Sea by Crocetta *et al.* (2015), in the Gulf of Mersin by Yağlıoğlu and Ayaş (2016), in the Gulf of Antalya by Gökoğlu (2016). Also this species was reported in the Aegean Sea by Turan and Öztürk (2015); Mytilineou *et al.* (2016). While these studies were conducted, these species expanded their distribution to the west of Mediterranean Sea.

Pterois volitans (Linnaeus, 1758) is known as Red Lionfish. Red Lionfish is typically found from shore (0 m) to approximately 50 m depths (Schultz 1986). The red lionfish *P. volitans* is distributed in the Pacific, Atlantic Ocean and also found in the Indo-West Pacific Ocean (Schultz 1986; Gürlek *et al.* 2016). This species has been firstly recorded by Gürlek *et al.* (2016) from the Mediterranean in shores of the Gulf of Iskenderun, Turkey. Therefore, at the present paper gives the second report of *P. volitans* in the Mediterranean Sea.

Materials and Method

Red lionfish (*Pterois volitans*) was firstly caught (30 m deep) during the regular commercial trawl operation in the Gulf of Antalya $36^{\circ}46'54.83''\text{N} - 31^{\circ}12'0.48''\text{E}$ October 15th 2016, the second Red lionfish was caught off the Ovacık coast in the Gulf of Mersin $36^{\circ}23'35.65''\text{N} - 34^{\circ} 6'58.63''\text{E}$ December 27th 2016. The locations of the captured specimen are given in Figure 1. The specimens were preserved in the 5% formaldehyde solution and deposited in the Museum of the Faculty of Fisheries, Akdeniz University. All morphometric measurements were made to the nearest 0.01 mm using dial calipers. The weight was measured with a precision scale of 0.01g. Morphological and taxonomic descriptions and color of the captured specimen were followed according to Schultz (1986), Paulin (2012) and Gürlek *et al.* (2016).

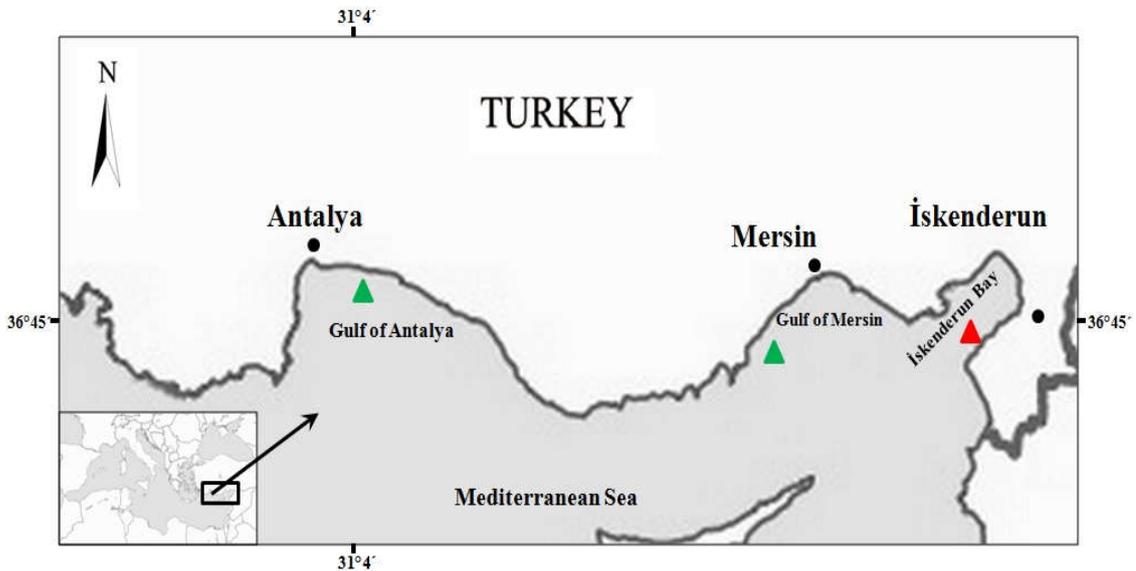


Figure 1. Our sampling locations of *Pterois volitans* shore of Turkey (Green point). Gürlek *et al.* 2016 (Red point).



Figure 2. Picture of *Pterois volitans* from the Gulf of Antalya

Result

The picture of the captured specimen is given in Figure 2. The main meristic counts and measurements are given in centimetres of the first *Pterois volitans*. Dorsal spin rays: XIII; dorsal fin rays: 11; Pectoral fin rays 14, anal spin rays: III; anal fin rays: 7; pelvic spin rays: I; pelvic spin rays: 5; caudal fin rays: 14; weight: 799 g; total length: 37 cm; standard length: 28.5 cm; head length 8 cm; body depth 12 cm. Second one; Dorsal spin rays: XIII; dorsal fin rays: 11; Pectoral fin rays 14, anal spin rays: III; anal fin rays: 7; pelvic spin rays: I; pelvic spin rays: 5; caudal fin rays: 14; weight: 381 g; total length: 32.5 cm; standard length: 24 cm; head length 7,5 cm; body depth 9 cm. Comparison of the main meristic counts and measurements of the present study with Gürlek *et al.* (2016) is given in the Table 1.

Table1. Comparison of the main meristic counts and measurements of present study with Gürlek *et al.* (2016)

The main meristic counts and measurements	Present study	(Gürlek <i>et al.</i> 2016)
Dorsal spin rays	XIII	XIII
Dorsal fin rays	11	11
Anal spin rays	III	III
Anal fin rays	7	7
Pectoral fin rays	14	14
Pelvic spin rays	I	I
Pelvic fin rays	5	5
Caudal fin rays	14	14
Total weight	799,68gr	122,63gr
Total length	37cm	22,2cm
Standart length	28,5cm	17,1cm
Head length	8cm	6,06cm
Body depth	12cm	5,53cm

The specimens were identified as *P. volitans* based on the dorsal and anal fin ray meristics (D XIII + 11; A III + 7) as opposed to *P. miles* (D XIII + 10; A III + 6) according to Schultz (1986), Bariche *et al.* (2013) and Gürlek *et al.* (2016).

Discussion

These areas were the locations reported the second and third records of the Red Lionfish in the Mediterranean Sea. The first record of *P. volitans* was reported by Gürlek *et al.* (2015) in the shore of the İskenderun Bay, Turkey.

P. volitans and *P. miles* are very similar species and also their living areas are similar. They are both natives to the Indo-Pacific realm, with *P. miles* present from the Red Sea to Sumatra, and *P. volitans* mainly in the western Pacific (Froese and Pauly, 2013; Bariche *et al.* 2013). Red Lionfish can be distinguished from other Pterois species with few morphologic features and meristic counts according to Schultz (1986); Bariche *et al.* (2013) and Gürlek *et al.* (2016). *P. miles* have historically been treated as synonyms of *P. volitans* (eg, De Beaufort and Briggs 1962; Dor 1984), But, Schultz (1986) described meristic and morphometric differences between the two species. His study shows that specimens of *P. volitans* usually have 11 dorsal and 7 anal fin rays while *P. miles* specimens usually have 10 dorsal and 6 anal fin rays, and that *P. volitans* has significantly larger pectoral fins and larger spots on the soft vertical fins (Schultz 1986, Freshwater *et al.* 2009, Gürlek *et al.* 2016).

P. miles is native to the Indian Ocean, including the Red Sea to Sumatra, but its distribution range has recently expanded to the Atlantic Ocean as well as to the Mediterranean basin (Dailianis *et al.* 2016). The introduction of invasive alien species to the Mediterranean Sea is a major threat to biodiversity, structure and function of ecosystem. Not only marine invasions may have economic and human health implications (Gürlek *et al.* 2016) but also tourism has negative affected (Frangou *et al.* 2006). Lionfishes are not active swimmers as other active swimmer fishes. They can be found

in shallow water as beach. So, if the skin diver, swimmer or fishermen come closer to them, they can be exposure to sting of their spines.

In this study, *P. volitans* was caught in 30 m depths by the commercial trawl operations. Allen and Steene, (1988) reported this species commonly occurred between 2 m and 55 m depths in the Pacific and Atlantic Oceans.

While one specimen of *P. volitans* do not necessarily indicate the existence of its established population in the Mediterranean Sea, the past and present records of lessepsian species suggest that *P. volitans* migrate westward in the Mediterranean Sea (Turan *et al.* 2016; Gürlek *et al.* 2016). Our study shows that *P. volitans* westward extension along to Turkey Mediterranean coasts.

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