



Confirmation records and new distribution of the red cornet fish *fistularia petimba* lacepède, 1803 (actinopterygii: fistulariidae) in the Syrian Marine Waters (Eastern Mediterranean)

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ABSTRACT

Biodiversity studies are important tools in fisheries management, especially when point to new species. These studies usefully help to monitor the native species as well as the exotic ones that appear for the first time in the fishing catch; or those that had established themselves in the area. The Mediterranean has been subjected to introduction of more than 100 new species,

Fistulariidae family is represented in the Mediterranean by two fish species, and both of them were recorded in the Syrian. This paper confirms that *F. petimba* do exist in Lattakia coast, and distributes southward along ~40 km to Banyas coast.

Keywords: *fistularia petimba*, Invasive species, Red Sea, Mediterranean Sea, Establishment.

1. INTRODUCTION

Biodiversity studies are important tools in fisheries management, especially when point to new species (Katsanevakis et al., 2014). These studies usefully help to monitor the native species as well as the exotic ones that appear for the first time in the fishing catch; or those that had established themselves in the area (Oral, 2010; Kalogirou, 2011; Ibrahim et al., 2019a). Additionally, they help in determining the magnitude of the alien species impact on biodiversity and marine ecosystem (Ben Haj et al., 2009; Katsanevakis et al., 2016). Thus providing appropriate solutions to reduce the impact of alien species on the new habitats (Mooney et al., 2001; Geburzi and McCarthy, 2018). The alien species move across different biogeographic regions to the new areas, benefitting from many factors especially the human activities and climate changes that make the new area more able to accommodate them (Vallerga et al., 2003; Alshawy et al., 2019c, e). Accordingly, the Mediterranean has been subjected to introduction of more than 100 new species (Drago et al., 2004; Ibrahim, 2009; Zenetos et al., 2012; Alshawy et al., 2019b). Fistulariidae family is represented in the Mediterranean by two fish species, both of them were recorded in the Syrian coast: *Fistularia commersonii* Rüppell, 1838 which was first recorded since 2002 (Galyia (2003), and *Fistularia petimba* Lacepède, 1803 which was first recorded in 2019 from Lattakia coast (Hussein et al., 2019). This paper confirms that *F. petimba* do exist in Lattakia coast, and distributes southward along ~40 km to Banyas coast.

2. MATERIALS AND METHODS

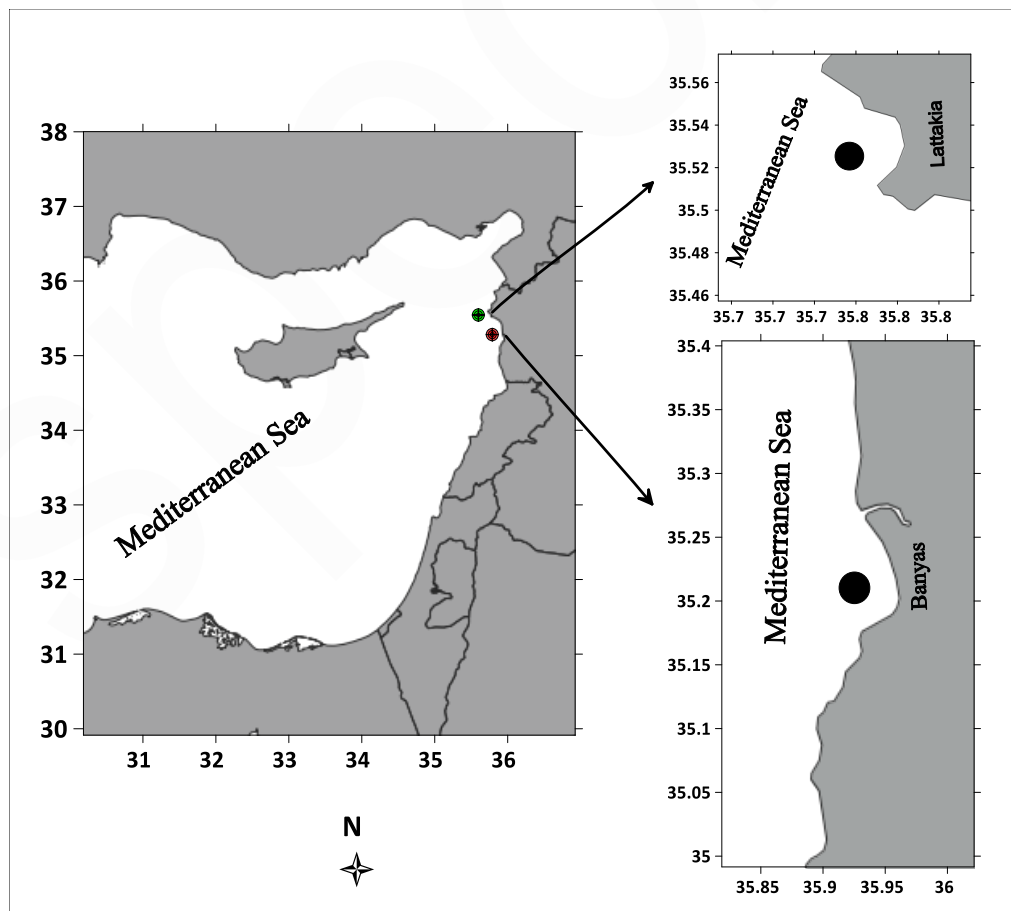


Figure 1 A map showing the collection sites of *F. petimba* from the Syrian marine waters

On 24/9/2019, a field trip was executed in the marine waters facing Banyas city, Syria (N: 35°14'35.11", E: 35°55'12"; Fig.1), and on 29/9/2019 other field trip was executed in the marine waters facing Lattakia city, Syria (N35°31'5.97", E: 35°42'48.57"; Fig.1). Fish samples were collected using fixed gillnet (18mm mesh size, 3m height, 200m length: with duplicates), with assistance of fishing boat (9.5m, 19HP). The fish specimens were identified according to Carpenter and De Angelis (2016). The morphometric measurements (length to the nearest 0.1mm, weight to the nearest g), and meristic counts were recorded. They were then photographed, preserved in 7% formaldehyde, and placed at the Biological Laboratory of the High Institute of Marine Research (Tishreen University - Lattakia, Syria) as reference samples (unnumbered yet).

3. RESULTS

Two specimens of the red cornet fish *Fistularia petimba* Lacepède, 1803 (Fig2) were caught at ~ 45 m water depth off Lattakia coast, and one specimen was caught at ~30 m water depth off Banyas coast. They have long and lightly compressed body, long tubular snout and small mouth. The dorsal fin has soft rays and located approximately at the end of the body, and the caudal fin is clearly forked and has one elongated filament (Fig 2). The dorsal side of the body has a row of bony plates (Fig 2) stretching along to the end. The posterior part of the body has a series of backward-pointing spines on each side (Fig 2). The body is orange-brown and the abdominal side is pearly white. The margins of dorsal, anal and caudal fins are bright orange. The meristic formula was: D,15;A,15;P,15;V,6; C,7. These features of *F. petimba* are in full agreement with Carpenter and De Angelis (2016) and Ünlüoğlu et al. (2018). The morphometric measurements are shown in Table (1).



Figure 2 *F. petimba* specimen, caught on 24, 29/9/2019 from the Syrian coast

Table 1 Morphometric measurements (mm or g, N=3) of *F.petimba* from the Syria marine waters.

| Features | Min | Max | Mean | S.E. |
|-----------------------------------|-----|-----|------|------|
| Total length (with tail filament) | 675 | 745 | 719 | 22 |
| Standard length | 480 | 510 | 499 | 9 |
| Body depth | 13 | 14 | 13.6 | 0.3 |
| Head length | 183 | 187 | 185 | 1 |
| Eye diameter | 13 | 13 | 13 | |
| Snout length | 137 | 144 | 142 | 2.3 |
| Dorsal fin length | 20 | 21 | 20.6 | 0.3 |
| Pectoral fin length | 20 | 20 | 20 | |
| Pelvic fin length | 3 | 3 | 3 | |
| Caudal fin length | 25 | 28 | 20.6 | 0.8 |
| Anal fin length | 20 | 21 | 20.6 | 0.3 |

| | | | | |
|---------------------|-----|-----|-------|-----|
| Pre-dorsal length | 400 | 430 | 416.6 | 8.8 |
| Pre-pectoral length | 182 | 190 | 187.3 | 2.6 |
| Pre-pelvic length | 240 | 270 | 260 | 10 |
| Pre-anal length | 400 | 430 | 416.6 | 2.6 |
| Total weight | 72 | 94 | 82 | 6 |

4. DISCUSSION

The red cornet fish *F. petimba* has been recorded in most of the eastern Mediterranean coasts as a Lessepsian species (Stern et al., 2017, Çiftçi et al., 2019, Hussein et al., 2019). This species is similar, in terms of feeding behavior and environmental requirements, to *F. commersonii* (Fischer and Bianchi, 1984, Myers, 1999) which spread in the Mediterranean and became an invasive species. This may indicate the ability of *F. petimba* to follow the same trend and establish itself in the Syrian marine waters, occupying the space and exploiting food resources. This confirmation record in Lattakia coast, besides the local fishermen several similar confirmations, and the new distribution along to Banyas coast support the hypothesis of *F. petimba* possible establishment in the Syrian coast. These confirmation records give an evidence of changes in Mediterranean sea environment (Ibrahim, 2008; Ibrahim et al., 2019b) and highlight the Mediterranean's ability to accommodate the tropical species (Ibrahim et al., 2010; Hallom et al., 2014; Alshawy et al., 2019a, b, d). This could lead to disappearance of some native economic species; because of the exotic species competition for food and space (Ibrahim et al., 2002; Ibrahim, 2009). The long term adaptation to the prevailing environmental conditions in this area may cause a significant disturbance to biodiversity, mainly to those fish species that feed on shrimp and small fish (Froese and Pauly, 2019). Besides the difficulty in catching such sagittal-body specie due to its ability to escape from fishing nets, it could affect the local fishermen as a result of feeding on native economic fish. Stocks sustainable management of this species requires regional and international cooperation (Hussein et al., 2011), to regulate any constant introduction into the Mediterranean Sea and mitigate their environmental impact on native fish populations in order to conserve the Mediterranean environment (Hussein et al., 2011b; a, Ibrahim et al., 2020).

5. CONCLUSION

The red cornet fish *F. petimba* is a lessepsian species, had been recorded in the Syrian marine waters. It starts to establish itself in the area, benefitting from the environmental deteriorations in the Mediterranean Sea.

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Authors' contributions

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