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First record of *Pelagia noctiluca* (Forssk ål, 1775) on the coast of Syria

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Abstract

Background: Alien jellyfish species are increasing in the Mediterranean coast of Syria. The Lattakia port area has been monitored since 2010, and three gelatinous species (Phyllorhiza punctata, Cassiopea andromeda and Salpa maxima) were recorded for the first time in Syrian coastal waters (Durgham, J Oceans Oceanogr 5:153-155, 2011; Siokou et al, Mediterr Mar Sci 14:238-249, 2013; Bilecenoglu et al, Mediterr Mar Sci 14:463-480, 2013).

Methods: Two specimens of *Pelagia noctiluca* were caught in the coastal waters about 3 km North West of Lattakia port, after Several hundred dives have been made at more than 20 sites down to 40 m depth.

Results and conclusion: This research led to the identification of the first record of the mauve stinger Pelagia noctiluca (Forsskål, 1775) on the Mediterranean coast of Syria.
This jelly fish has been observed on 14 June 2014 near Lattakia Port, and Several observations indicate that these individuals may have been transported via ballast water.

Keywords: Cnidaria, Mauve stinger, Syria, Alien species

Introduction

The mauve stinger *Pelagia noctiluca* is a holoplanktonic Scyphozoan (i.e. lacking a benthic polyp stage) (Purcell, 2005). This jellyfish has a wide distribution in all warm and temperate waters and is found in Bermuda (Sterrer, 1986), the Mediterranean Sea (Goy et al., 1989; Ferraris et al., 2012), off the coast of California (Fox & Millott 1954), and in the Atlantic Ocean (Larson et al. 1991), and is frequently by far the most common jellyfish species throughout the year.

In the Mediterranean Sea *Pelagia noctiluca* has occurred in both the western basin (Daly Yahia et al. 2003; Hamza, 1990; Ranson, 1925) and the eastern basin (Goy et al., 1990; Lakkis et al., 1990; Lakkis, 2013; Piccinetti Manfrin & Piccinetti 1983; Bingel, 1991; Bingel et al. 1991; Axiak et al. 1991; Benovic 1984, Malej, 1989), *Pelagia noctiluca* shows periotic population peaks with occasional devastating impact in certain parts of the Mediterranean; these peaks occur on average at twelve year intervals, and have been related to climatic factors (Goy et al., 1989). The species has been recorded in other Mediterranean areas (Tunisian coast, Maltese waters, the Aegean and Ionian seas, the southern Adriatic), but it was unknown from Syrian coastal waters thus far.

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Materials and methods

Since 2010, surveys of the pelagic fauna have been carried out in the Lattakia Coastal region between Lattkia Port (~35°30′S) and the Ras Ibn-Hani (~35°34′S). Several hundred dives have been made at more than 20 sites down to 40 m depth. All jellyfish specimens were photographed, fixed in 4 % formaldehyde, and stored at the zooplankton laboratory of the High Institute of Marine Research, Tishreen University (Syria). The surface temperature and salinity are taken by WTW MULTYLIN P4.

Results and discussion

Two specimens of *Pelagia noctiluca* (Figs. 1 and 2) were caught in the coastal waters of Lattakia, about 3 km North West of Lattakia port (35°32′9.44″ N,35°43′17.13″ E), on 14 June 2014.

The specimens had a hemispherical and transparent umbrella, the exumbrella surface covered with small colorless warts. Freshly collected live animals showed a mauve coloration in the gonads, tentacles and oral arms (Fig. 1); and from the umbrella margin eight thick tentacles arose between successive lappets; the tentacles were

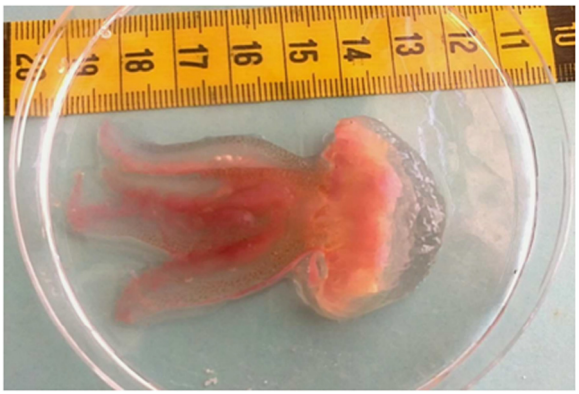

Fig. 1 Freshly collected live specimen of *Pelagia noctiluca* (Forsskål, 1775) Bell diameter 32 mm (Image by R. Ibraheem)

rounded, somewhat shorter or equal in length to the oral arms (5 and 6 cm respectively). Bell diameter and wet weight for the 2 *P. noctiluca* specimens were 25 and 32 mm; 10.41 and 28 g respectively.

The temperature and salinity at the sampling time were 24°C and 39.3 ‰, respectively. The two specimens were collected at depths of 28–30 m, and it was observed that these specimens were swimming with a strong current that was coming up from the south. The Lattakia port area has been monitored since 2010, and three gelatinous species (*Phyllorhiza punctata, Cassiopea andromeda* and *Salpa maxima*) were recorded for the first time in Syrian coastal waters (Durgham, 2011; Siokou et al., 2013; Bilecenoglu et al. 2013). The presence of these gelatinous species alongside *Pelagia noctiluca* in the Lattakia port area may be due to transportation via ballast water of oil tankers and other ships. *Pelagia noctiluca* has been assigned to five size classes using measurements of bell diameter: <1.0 cm; 1.0<3.5 cm (Immature medusa); 3.5<6.0 cm (Conditionally mature); 6.0<8.5 cm (Mature); >8.5 cm (Malej & Malej, 2004). According to this classification our individuals are immature medusae. This classification, with the presence of these individuals close to an important commercial port in Syria, along with the fact that larvae of *Pelagia noctiluca* have not been recorded in any plankton samples on the Syrian coast, all support the hypothesis that these individuals may have been transported via ballast water.

Fig. 2 Preserved specimen of *Pelagia noctiluca* (Forsskål, 1775 Bell diameter 25 mm (Image by H. Durgham)

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Authors' contributions
HD and SI has contributed to all aspects of the research work presented here including caught and identification of jellyfish, write and finalizing the manuscript. RI contributed to taking a photograph of one of the two jellyfish specimens at the zooplankton laboratory of the High Institute of Marine Research. All authors read and approved the final manuscript.

Competing interests
The authors declare that they have no competing interests.

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