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First Descriptive Occurrence of the Wahoo *Acantocybium solandri* (Cuvier, 1832) from the Libyan Waters, Central Mediterranean

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Research Article

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Abstract

The confirmed occurrence of the wahoo *Acanthocybium solandri* has been reported from the marine waters of Libya. Two specimens were caught with a trammel net at a depth of 15 m off the coast of Talamitha in February 2025. The previous record of *A. solandri* originated from an indeterminate locality along the Libyan coast, lacking both descriptive data and photographic documentation. In this regard, this report aims to present the captured *A. solandri* specimens in Libyan waters with specified geographic location for the first time.

Keywords: *Wahoo, Acanthocybium solandri, occurrence, central Mediterranean, Libyan coast.*

Introduction

Wahoo *Acanthocybium solandri* (Cuvier, 1832) is an epipelagic species of the family Scombridae, distributed in tropical and subtropical waters of the Atlantic, Indian and Pacific Oceans, including the Caribbean and Mediterranean Seas, frequently solitary or forming small, unstable aggregations rather than compact shoals (Collette and Nauen, 1983). *A. solandri*, with its slender and streamlined body structure, is an important oceanic species for both commercial and recreational fisheries. Since its spawning periods extend over a long period of time, the individuals at different stages of maturity

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can often be caught at the same time (Oxenfordt et al., 2003). The diet of this predatory species consists of fish and squid (Collette, 1986). It reaches a maximum length of 250 cm (Sommer et al., 1996) and has a recorded maximum weight of 83 kg (Collette and Nauen, 1983).

The earliest documented record of *A. solandri* in the Mediterranean was a single specimen near the coast of Palermo (Sicily, Italy) in the Tyrrhenian Sea (central Mediterranean), as reported by Döderlein (1872), measuring 144 cm in total length. Over a century later, in 1990, two specimens, each weighing 15 kg, were reported in the Strait of Messina (Italy) (Costa, 2012). Another specimen was subsequently recorded in the same area in 2004 (Romeo et al., 2005). The species spread towards the south of the central Mediterranean in 2019 and was sampled by Elbaraasi et al. (2019) during their 5-year fisheries survey along the entire Libyan coast but was reported as being included in their checklist from an undefined region of Libya. More recently, in 2024, wahoo was first recorded in the eastern Mediterranean off the coast of Al-Arida, Lebanon (Fatfat et al., 2024), in the southeastern Mediterranean off the coast of Alexandria, Egypt (Farrag et al., 2025), and in the northeastern Mediterranean off the Bays of Iskenderun and Antalya, Türkiye (Gökoğlu et al., 2024). The last record was reported by Deidun et al. (2025) in Maltese waters in late 2024.

This study provides for the first time the occurrence of *A. solandri* in Libyan waters (central Mediterranean) with its exact geographical location, whose known distribution extends from the central Mediterranean to the eastern Mediterranean.

Material and Methods

Two specimens of wahoo *Acanthocybium solandri* were caught with a trammel net at a depth of approximately 15 m in the Talamitha coast of Libya (32.042173 N, 21.001102 E) in February 2025 (Figure 1). Only photos could be taken without taking the specimens to the laboratory.

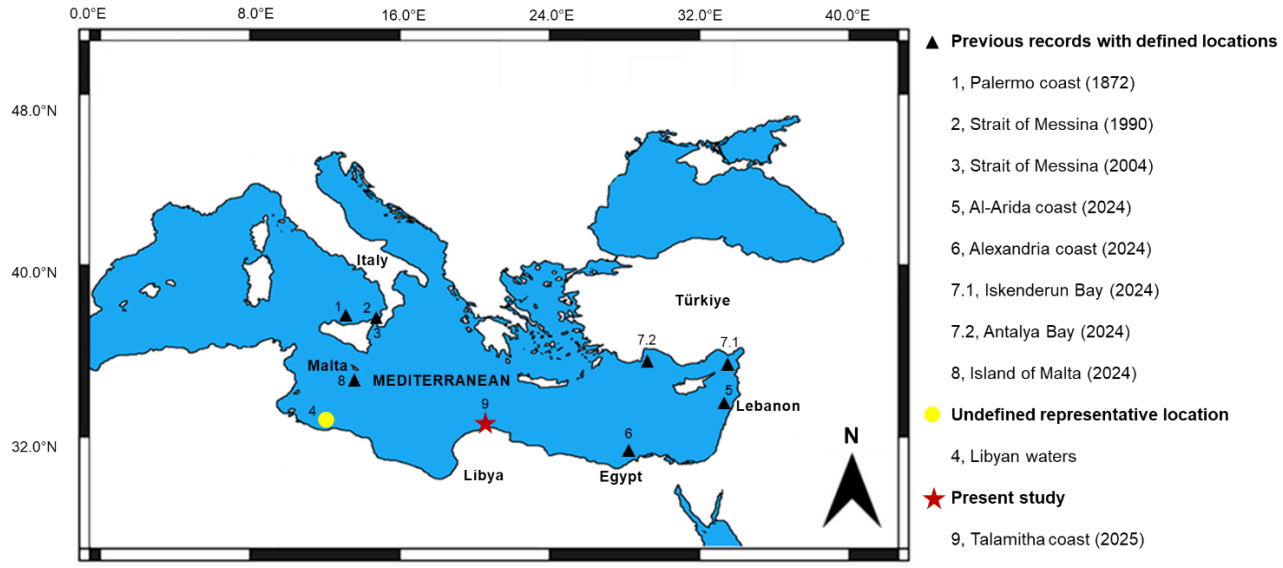

Figure 1. Documented locations of *Acantocybium solandri* records in the Mediterranean.

Result and Discussion

Two specimens of *Acantocybium solandri*, estimated to be approximately 80 cm and 66 cm in standard length (SL), have very long bodies, and their pointed heads are observed to be approximately 18-20% of their SL. The snout is 58% of the head length, and the posterior end of the maxilla is completely hidden. The lateral line curves downward from the bottom of the first dorsal fin. It has no gill rakers, a relatively short pectoral fin, positioned close to the head, and a forked caudal fin. Body covered with small scales and no developed anterior corset. Back iridescent bluish green, body grey with numerous vertical cobalt blue bars extending below the lateral line (Figure 2).

Figure 2. *Acantocybium solandri* collected from Talamitha coast, Libya.

The Mediterranean fauna includes the Lessepsian migrant narrow-barred Spanish mackerel *Scomberomorus commerson*, which is morphologically very similar to *A. solandri* (Turan et al., 2024a). Moreover, this similarity suggests that *A. solandri* specimens caught by fishermen thus far might have been misidentified as *S. commerson*, a species frequently caught in the eastern Mediterranean (Golani, 2021; Gökoğlu et al., 2024). However, *A. solandri* can be easily distinguished from *S. commerson* at first sight by the absence of gill rakers, the fact that the posterior end of the maxilla is completely hidden, the snout is as long as the rest of the head, and the lateral line curves abruptly downwards below the first dorsal fin.

The chronological records of *A. solandri* from the Mediterranean indicate that it has expanded its range from the central Mediterranean to the eastern Mediterranean and has been caught with a wide variety of fishing gear. The first known record of this species was caught with tuna trap off the coast of Palermo (Italy) in 1872 (Döderlein, 1872); with traditional swordfish harpooning in the Strait of Messina (Italy) in 1990 (Costa, 2012) and 2004 (Romeo et al., 2005); with various (not exactly specified) fishing gears along Libyan waters between 2009 and 2013 (Elbaraasi et al., 2019); with tuna and mackerel nets off the coast of Al-Arida (Lebanon) in January 2024 (Fatfat et al., 2024); with fishing rod during recreational activity off the coast of Alexandria (Egypt) in April 2024 (Farrag et al., 2025); with harpoon from the Iskenderun Bay and fishing rod from the Antalya Bay (Türkiye) in June 2024 (Gökoğlu et al., 2024); with purse seine (first specimen) and trawl (second specimen) from

Maltese waters in October and November 2024, respectively (Deidun et al., 2025); and eventually, in this study, with trammel net from the Talamitha coast of Libya in February 2025.

Mediterranean remained a semi-enclosed body of water connected to the global ocean system solely *via* the Strait of Gibraltar, for 5.33 million years. Later, the opening of the Suez Canal in 1869 established a second link, connecting it to the Red Sea and the Indian Ocean (Por, 1978). Hence, the influx of biota from the Atlantic Ocean and especially the Red Sea greatly influenced the Mediterranean ichthyofauna (Turan et al., 2018, 2024a,b; Uyan et al., 2024). *A. solandri*, a fast-swimming epipelagic fish distributed circumglobally across tropical and subtropical waters, has raised some controversy regarding whether its introduction to the Mediterranean Sea originated from the Indo-Pacific or the Atlantic. Garber et al. (2005) and Haro-Bilbao et al. (2021) have demonstrated genetic differentiation between wahoo populations in the Atlantic and Indo-Pacific. In this case, *A. solandri*, included in the marine ichthyofauna of Lebanon (Fatfat et al., 2024), Egypt (Farrag et al., 2025), and Türkiye (Gökoğlu et al., 2024), is probably of Indo-Pacific origin and thus entered the Mediterranean *via* the Suez Canal. On the other hand, a single individual of wahoo, first described by Döderlein (1872) as a new species, *Cybium verany*, in the central Mediterranean coast of Palermo, was later accepted under the current nomenclature *A. solandri*. The individual is preserved in the Zoological Museum of the University of Palermo (catalogue number P 363), and its origin has been the subject of speculations (Di Palma, 1979; Sarà and Sarà, 1990). Taking into account the improbability of a single individual migrating from the Red Sea into the Mediterranean following the opening of the Suez Canal in 1869 and reaching Palermo within three years, the hypothesis that the species entered from the Atlantic Ocean *via* the Strait of Gibraltar appears more reasonable. This complex situation can be resolved by performing mitochondrial DNA-based sequence analysis of the Mediterranean populations of *A. solandri* and phylogenetically comparing the obtained nucleotide sequences with those derived from Atlantic and Indo-Pacific samples in existing databases.

In conclusion, the study provides the first descriptive record of *A. solandri* in Libyan waters, including its specified geographic location. Moreover, the record from 5 different locations in 2024 may indicate a potentially resident population of wahoo in the Mediterranean. In such a case, *A. solandri* would be an important species for Libyan fisheries. Given the gap in knowledge regarding the bioecology and genetic structure of *A. solandri* in the Mediterranean, further research on the species' populations is essential.

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Conflict of Interest

The authors declare that for this article they have no actual, potential or perceived conflict of interest.

Author Contributions

A.F. and D.G. performed all the experiments and drafted the main manuscript text. Both authors reviewed and approved the final version of the manuscript.

Ethical Approval Statements

No ethics committee permissions are required for this study.

Data Availability

The data used in the present study are available upon request from the corresponding author.

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