First record of peregrine shrimp *Metapenaeus stebbingi* Nobili, 1904 (Crustacea, Decapoda: Penaeidae) in the Iraqi waters, North-West Arabian Gulf

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**Abstract:**

One male specimen of the species *Metapenaeus stebbingi* Nobili, 1904 was first recorded in November 2021 from the Iraqi territorial waters, Northwest of the Arabian Gulf. Therefore, the investigated shrimp species nominally corresponds to the original description of *M. stebbingi* through the main diagnostic features. It must be adopted in the spread and expansion of species, a new record of the area, and a distinctive addition to the species of commercial shrimp within the Iraqi marine waters.

**Keywords:** Decapod, Malacostraca, *Metapenaeus stebbingi*, Penaeid.

**Introduction:**

The family Penaeidae is the largest of the crustaceans representing the most abundant species of commercial importance. Shrimp in comparison with arthropods, are characterized by large size most common as seafood ¹,². Shrimp of two the genus *Penaeus* and *Metapenaeus*, are major commodities in the fisheries sector ². The genus *Metapenaeus* is one of the important shrimp genera that is widespread throughout the Indo-Pacific regions, represented by ten species, including *Metapenaeus stebbingi*, out of worldwide 24 species ³. The shrimp was studied in Kuwaiti waters, and four species of commercial shrimp were recorded, they were divided into two groups, the first living in muddy bottoms under the tidal, and included *Penaeus semisulcatus*, *Parapenaeopsis stylifera*, and *M. stebbingi*, while the second group included *Metapenaeus affinis* in the region Tides ⁴. Some studies have shown that *M. stebbingi* makes up 4% or less of the total shrimp catch in the Arabian Gulf waters, as is the case in Kuwaiti waters, where most of the catch is *P. semisulcatus* (40%) and *M. affinis* (48%). as well as in Iranian waters where most of the shrimp catch is from *Penaeus merguiensis* (60-70%) ⁵,⁶.

The genus *Metapenaeus* in the Iraqi is represented by the one species *M. affinis*, first recorded by ⁷. Recently, a campaign has been organized to classify some of the invertebrates of the Iraqi coast, including the shrimp log, *Alpheus edwarsi* ⁸. The most important species of commercial shrimp in the Iraqi regional and internal waters are *P. semisulcatus*, *M. affinis*, *P. stylifera* and *Macrbrachium nipponense*, which can be used in aquaculture ⁹,¹⁰. Despite the scientific development that took place using molecular classification to classify aquatic invertebrates, the phenotypic characteristics remained the most important factor in classifying and diagnosing their species ¹¹,¹²,¹³. It is possible to depend on this species of commercial shrimp that can be exploited in farming.

The current study aims to report the first record of shrimp *M. stebbingi* in the Iraqi marine waters, Northwest of the Arabian Gulf as a new record of commercial shrimp in the Iraqi marine catch.

**Materials and methods:**

One live male *M. stebbingi* shrimp was collected in November 2021 from the current study area (29° 51 '18° N 48° 40' 52° E) NW of the Arabian Gulf (Fig.
1), using a benthic traction trawl at a depth of more than 10 meters, and it was caught with two species of shrimp *M. affinis* and *P. stylefera*. The shrimp was kept in a plastic bottle in an alcohol solution at 70%, and the diagnostic study was completed in the laboratories of the Department of Marine Biology, Marine Science Center, at the University of Basrah, Iraq. Taxonomic parts of the specimen were photographed using a stereomicroscope (Carl Zeiss - Stemi 2000-C). A camera (Canon G10, 52 mm wide) was attached to show the descriptions of the shrimp parts through the display screen. The distinctive characteristics are mentioned in the FAO Marine Species Identification Sheets 14, 15.

**Material examined:** Single male, total length (LT)= 88 mm, carapace length (LC)= 20 mm.

![Figure 1. Local map showing the sampling area.](image)

**Result and Discussion:**

**Systematic Treatment**

Kingdom: Animalia  
Phylum: Arthropoda  
Class: Crustacea (Brunnich, 1772)  
Order: Decapoda (Latreille, 1802)  
Infraorder: Penaeidea Rafinesque, 1815  
Family: Penaeidae Rafinesque, 1815  
Genus: *Metapenaeus* Wood-Mason and Alcock, 1891  
*Metapenaeus stebbingi* Nobili, 1904 16.

**Synonyms**

*Penaeopsis stebbingi* De Man, 1911  
*Mangalura stebbingi* Burkenroad, 1959  

**Description**

The shrimp has a body almost devoid of whiskers. It is characterized by creamy yellow color with gray spots and rust on the body and pereiopods. The antennas and the distal part of uropods are grayish-purple rust. Rostrum is characterized by seven teeth on the dorsal margin, however no teeth were found on the ventral margin. The posterior epigastric segment’s dorsal tooth is well separated from the other rostral teeth. All specifications (spots and teeth) are indicated in Fig. 2 A and B.

Post-spine keel is low, wide, and ends near the middle of the carapace length, this, the latter is supplied with antennae and spines of the liver.
The two distomedian projections of petasma have a hard styloid attachment, directed forward and serrated on the ventral margin. Furthermore, two pens are next to each other in the apical portion of petasma. Therefore, the lateral division is directed outward and separated in the dorsal and ventral processes (Fig. 3 A and B.).

The merus of the fifth pair of pereiopods has a close degree followed by a compressed rounded tuber (Fig. 4 A and B).
Telson has a median groove, characterized by being lined with small cracks in the horizontal edges (Fig. 5).

The body is naked, with some hairs. The rostrum is straight, slender, and narrow, extending forward until the outer end of the peduncle of the horn or beyond that. The rostrum contains between seven to ten dorsal teeth with no teeth on the ventral edge. There is a dorsal back spine above the stomach area. The complaint is separate from the rest of the rostrum thorns and compared to *P. semisulcatus* which is distinguished by teeth found on both sides of the dorsal and ventral rostrum. The carapace area contains two spines (cornea and hepatic) with a distinct gill crest but without longitudinal sutures. There is a groove behind the snout, low and wide, ending near the middle of the length of the shield.

The telson contains a medial groove whose lateral edges are armed with fine spicules. The branching segment of the fifth pair of pereiopods (walking legs) contains a foramen followed by a compressed and rounded tubercle.

The male organ contains a pair of median processions, each with a typical, forward-facing, serrated appendix on the ventral margin, and there are two longitudinal appendages next to each other in the median part of this organ. However, the female organ in the females has a transverse crest protruding forward between the two lateral plates, and these lateral plates are triangular. Individuals are white-yellowish with scaly gray and red spots. It has a total length of 13.9 cm and is common between 8-12 cm. It lives on sandy clay soil at a depth of between 50-90 meters, and this is the depth at which it is generally found. Fished by pocket-shaped nets, consume fresh.

**Remarks**

Only one species of the genus *Metapenaeus* Wood-Mason and Alcock, 1891 was known in the Iraqi coast overlooking the Arabian Gulf. The *M. affinis* and the *M. stebbingi* can be easy to distinguish and isolate from the *M. affinis* through its smaller size, color, and shape of the male member's petasma, as well as from the shape of the thigh with merus 5th pereiopod. The record of *M. stebbingi* is the first on the marine Iraqi territorial waters northwest the Arabian Gulf. It is possible to rely on the taxonomic key mentioned by to distinguish between *M. affinis* and the species recorded (*M. stebbingi*) in the present study.

**Figure 4.** Male, *Metapenaeus stebbingi* Nobili, 1904, A, B, merus 5th pereiopod.

**Figure 5.** Telson of *Metapenaeus stebbingi* Nobili, 1904.
The distribution of the peregrine shrimp extends within the western Indo-Pacific region: from East Africa, and Red Sea to Pakistan and northwest India. It is also distributed in the Eastern Atlantic Ocean, Eastern Mediterranean, it spreads in estuaries and saline lagoons from Tunisia, Egypt, to the coast of Palestine.\(^1,15,18\).

Commercial fishing for the *M. stebbingi* shrimp occurs in a Mediterranean coast of Egypt, the Red Sea, the Gulf of Aden, the Pakistani coast, India and Madagascar, where this shrimp species is an important part of commercial fishing in these regions.\(^1\)

**Conclusion:**
The shrimp *M. stebbingi* mixed with *M. affinis* and *P. stylifera* has been observed during fishing operations in the waters of the northwest Arabian Gulf. And *M. stebbingi* is a species caught commercially within the shrimp catch. There is a need to follow up and study its existence, its spread and its biological impact, especially on other species of shrimp in the Iraqi coasts in the northwest of the Arabian Gulf.

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**Authors’ declaration:**
- **Conflicts of Interest:** None.
- We hereby confirm that all the Figures and Tables in the manuscript are ours. Besides, the Figures and images, which are not ours, have been given the permission for re-publication attached with the manuscript.
- The author has signed an animal welfare statement.
- **Ethical Clearance:** The project was approved by Marine Science Centre, University of Basrah, Iraq.

**Authors’ contributions statement:**
- T. H. Y. A. M. Presentation of the idea, diagnosis and classification of shrimp, discussion of results and writing of the manuscript. R. Z. K. Contributed to the design and implementation of electronic research, and discussion of the results. A. H. Z. Verify methods and classification keys, discuss results, and contribute to the final manuscript.

**Reference:**

**Metapenaeus stebbingi** Nobili, 1904

*Crustacea, Decapoda: Penaeidae*

registrations for the first time in the northern waters of the Gulf of Iraq, November 2022, and the external characteristics are consistent with the original description of the shrimp *M. stebbing*, and are important for the distinction between the species and the expansion of their distribution, and is an important new registration for the region, and adds a notable characteristic of shrimp species commercially within the waters of the northern Gulf of Iraq, especially species: *Metapenaeus stebbingi* Nobili.