

Research Report

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First Records of Two Pilumnid Crabs: *Pilumnopeus convexus* Maccagno 1936 and *Eurycarcinus orientalis* Edwards 1867 (Crustacea, Decapoda, Pilumnidae) from Khor Al-Zubair Canal, South of Iraq

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Abstract Two species of pilumnid crabs: *Pilumnopeus convexus* (Maccagno, 1936) and *Eurycarcinus orientalis* (Edwards, 1867) were collected during 2016. The material was mostly hand-collected from the intertidal zone during lower tide of Khor Al-Zubair canal, Basrah, Iraq, far from the Arabian Gulf coasts. A note on the morphological features of these two species and a photograph is provided to confirm the identification of the two crabs. The present study reports the presence of the two species from Khor Al-Zubair canal, which lies outside the distribution range of these species.

Keywords First records; Khor Al-Zubair; Arabian Gulf; Pilumnidae

Introduction

The family Pilumnidae is one of the most common families in the Arabian Gulf. Apel (2001) listed 23 Pilumnid species from the Arabian (Persian Gulf). Cooper (1997) has recorded this species from mangroves and sandy beach of northeastern coastal islands of Abu-Dhabi (Persian Gulf).

P. convexus (Maccagno, 1936) is the most common species in the intertidal zones of the Arabian Gulf and northern Arabian sea, found in variety of habitats including rocky, cobble, oyster banks, muddy, and mangroves (Ghani and Davie, 2000; Apel, 2001).

The species *P. convexus* was previously considered to be *Heteropanope glabra* (Stimpson, 1858), but a close examination revealed that it is a different one and could be *P. convexus* (Cooper, 1997).

The pilumnid crab genus *Eurycarcinus* is represented by two species, *E. orientalis* and *E. integrifrons* in coast of northwest of Arabian Gulf. Although the species had been confused with *E. integrifrons* in the past, the two taxa actually are quite different, and their types differ markedly (Apel, 2001).

E. orientalis is so far listed from Saudi Arabia (Basson et al., 1977), Kuwait (Titgen, 1982), Bahrain (Jones, 1986), Dubai (Hornby, 1997), the coasts of the UAE and Qatar (Cooper, 1997), Iran (Naderloo and Türkay, 2012).

The specimens of two species in intertidal zone of Khor Al-Zubair canal were collected with other species under stone, one was *Nasima dotilliformis* (Alcock, 1900) and the other *Parasesarma persicum* (Naderloo and Schubart, 2010), the present record has extended the distribution of these species outside the Arabian gulf.

1 Materials and Methods

Eighteen specimens of *P. convexus* and twenty-six specimens of *E. orientalis* were handpicked during low tide at the intertidal zone of Khor Al-Zubair canal. Approximately 15 km off the south Al-Zubair bridge on Shatt Al-Basrah and Shatt Al-Basrah Canal (Figure 1).

The specimens of two species were collected mainly by hands under a rock or in burrows of muddy coasts.

Specimens are preserved in 70% alcohol and deposited in the marine science center (MBD-MSC) (collection number: 40, 41 for *P. convexus* and *E. orientalis*, respectively).



Figure 1 Sampling sites, indicating the position of the Khor Al-Zubair in the northern part of the Arabian Gulf.

The specimens of two species were identified following Ghani and Davie (2000), Ghory et al. (2013).

The main abiotic parameters in the study area by the time of collection were as follows: salinity 16 ppt, water temperature 18 °C, pH 7.45.

1.1 Study area

Khor Al-Zubair canal is an extension of the Persian-Arabian Gulf waters in the lower reaches of Mesopotamia (Figure 1). It has a length of approximate 42 km, and a width of 1km at low tide, with an average depth of 10~20 m. In 1983, this water body was connected to an oligohaline marsh (Hor Al-Hammar.), by the Shatt Al-Basrah Canal, changing the environment of lagoon of the Khor from a hypersaline to an estuary (Hussain and Ahmed, 1999).

2 Results

2.1 Systematics

Order: Decapoda Latreille, 1802. Superfamily: Xanthoidea MacLeay, 1938. Sub Family: Pilumnidae Samouelle, 1819. Family: Pilumninae Samouelle, 1819 (Figure 2A); *Pilumnopeus convexus* Maccagno, 1936 (Figure 2B)

2.1.1 Material examined

Carapace measurements are length (CL) × breadth (CB) mm, respectively.

Total 18 specimens (11 males and 7 females) collected during 2016.

In 10/3/2016 were five males (15.5 × 21.4), (16.9 × 24.2), (17.5 × 25.3), (18.5 × 26.2), (19.8 × 27.6) mm. and three females (16.5 × 25.8), (16.2 × 24.7), (17.4 × 25.7) mm.

In 24/12/2016 were six males (7.5 × 14.3), (9.6 × 14.8), (11.7 × 16.5), (13.4 × 19.9), (17.9 × 24.8), (17.1 × 25.6) mm, and four females (7.4 × 12.1), (8.3 × 13.6), (12.4 × 17.1), (16.8 × 24.5) mm. Collected by hand under rocks during lower tidal.

2.1.2 Description

Carapace smooth, broader than long (Figure 2A). Dorsal surface with rows of small rounded granules along transverse cristae on frontal, gastric and branchial regions, covered with scattered plumose setae of varying

lengths mainly along transverse carapace ridges, never completely obscuring surface. Anterolateral margin with 3 teeth behind exorbital angle; first anterolateral tooth blunt, second and third teeth acute but not spine-tipped.

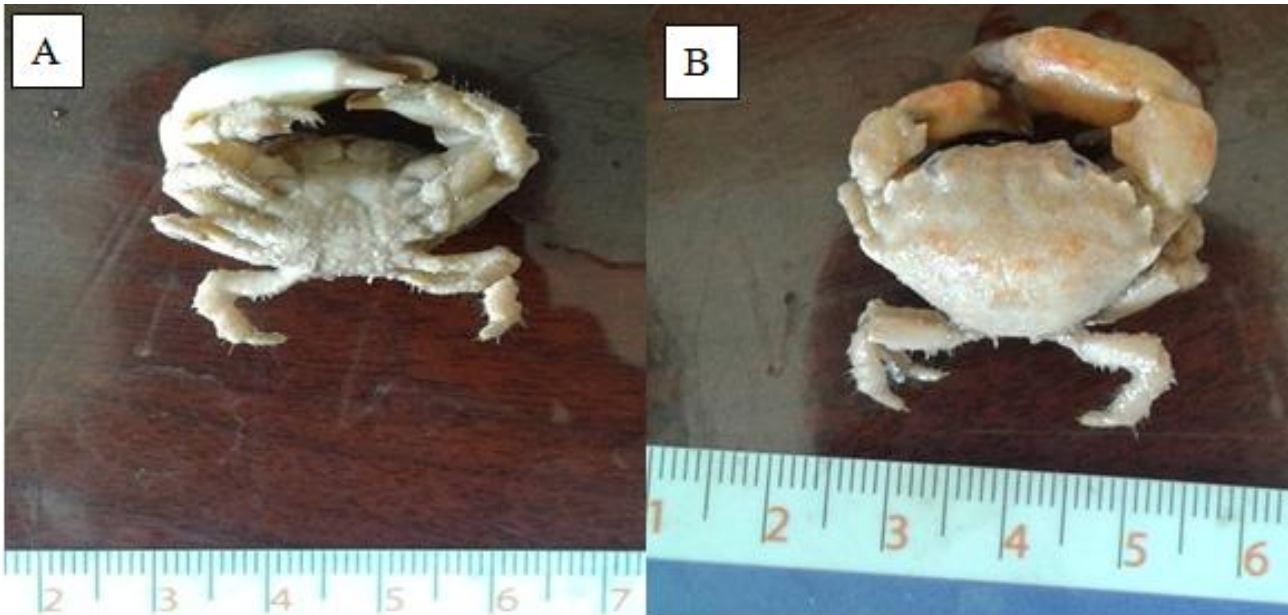


Figure 2 *Pilumnopus convexus* male general view

Note: A: overall dorsal view; B: ventral view

The chelipeds are unequal in both the sexes (Figure 2A). In larger specimens, the large chela appears to be smooth, very minute granules are present on ischium, merus carpus and outer surface of propodus. All the walking legs are with short and long plumose setae; smaller chela covered with fine granules and scattered short setae

The abdomen (Figure 2B) is seven segmented, all the segments are clearly marked, both the margins are fringed with thickly plumose setae, and sparse plumose setae on the surface of the abdomen are also visible. The first gonopod (Figure 2B) is strongly curved (S-shaped). The distal part is very strongly incurved.

2.1.3 Remarks

P. convexus (Maccagno, 1936), was originally described (but not figured) from two female specimens from Ethiopia (size not stated). The population of *P. convexus* (Maccagno, 1936) in this study seems to be large sized. The males were 19.8-27.6 mm long while females were 17.4-25.7 mm. Cooper (1997) has mentioned two types of populations, one being larger from the mangrove area and the other smaller from the beach, male 12.5-18.0 mm, female 11.1-17.2 mm.

P. convexus is one of the most common species found in a variety of habitats along the intertidal coast of the Persian Gulf. Apel (2001) examined material recorded as *P. vauquelini* by Stephensen (1946) and Basson et al. (1977) from the Persian Gulf and identified them as *P. convexus*. Apel (2001) believed that *P. vauquelini* does not occur in the Persian Gulf. He mentioned four morphologic characters allowing distinguishing these two closely related species (Apel, 2001).

2.1.4 Distribution

Distribution: Red Sea, Persian Gulf (Barnard, 1955) And now for the first time from Khor Al-Zubair, far of Northern of Arabian Gulf. The specie was recorded from sandy beach and under the rock in shores. The species is recorded from various habitats, such as mangroves, sandy beach and rocky shores.

2.2 Genus *Eurycarcinus orientalis*

2.2.1 Material examined (msc)

Carapace measurements are length (CL) mm x breadth (CB) mm, respectively.

Total 26 specimens (6 males and 20 females) collected during 24/12/2016 from the intertidal zones of the Khor Al-Zubair canal, south Al-Basrah city.

Six males (10.2 × 15.6), (14.4 × 18.9), (15.5 × 18.7), (16.8 × 22.3), (17.1 × 22.5), (19.5 × 23.5) mm; and twenty females (15.5 × 21.4), (15.8 × 22.1), (16.4 × 22.1), (16.5 × 22.8), (16.6 × 22.9), (16.9 × 23.1), (17.1 × 21.7), (17.3 × 22.8), (17.9 × 23.1), (18.4 × 23.5), (18.5 × 24.5), (18.8 × 24.7), (19.4 × 23.8), (19.5 × 24.5), (19.7 × 25.2), (20.2 × 25.8), (20.6 × 25.5), (21.1 × 26.1), (21.8 × 26.9), (22.5 × 27.4) mm.

2.2.2 Description

Carapace: moderately wider than long, largest male specimen 19.5 mm × 23.5 mm; smooth and shiny surface with antero-lateral borders less than two-thirds the length of the postero-lateral borders (Figure 3A). Antero-lateral borders with 2 sharp teeth and an indentation separating the anterior margin. The Carapace is pinkish purple, whitish at the edge, finger and thumb of chela slight darker.



Figure 3 *Eurycarcinus orientalis* male general view

Note: A: overall dorsal view; B: ventral view

Abdomen: well segmented, the sixth one more height than other segments (Figure 3B).

Chelipeds: unequal with the thumb of the larger chela bearing a tooth at its base (Figure 3A). Manus is smooth, pinkish purple at the upper side of the chela.

Male gonopod: The first gonopod is bent sharply back at the tip in the form of a hook bearing 3 unequal large spinules, the larger one is tend to be light green in color, and 5~6 smaller ones.

2.2.3 Remarks

The sex ratio of males to females was 1:3.3 during December, 2016, with dominant of ovigerous females. Most specimens of *E. orientalis* are covered with some adhesive barnacles and some molluscs. Some specimens are covered at ventral side with crude oil.

E. orientalis is only species of the genus *Eurycarcinus* recoded from the NW of the Arabian Gulf. Unfortunately, the specimens of *E. integrifrons* have never been collected from our region, but however both species are found in the Arabian Gulf.

2.2.4 Distribution

Gulf of Aden, Red Sea, Gulf of Oman, the Arabian Gulf, Pakistan, Bombay.

2.3 Habitat

P. convexus and *E. orientalis* were collected from Khor Al-Zubair, found under artificial stones some under

decaying wood, or under old boats at the intertidal zone.

Authors' contributions

Both authors have contributed equally toward the publication of this paper.

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