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## First Records of Pilumnid Crabs: *Pilumnopus convexus* Maccagno 1936 (Crustacea, Decapoda, Pilumnidae) from Khor Al-Zubair Canal, South of Iraq

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**Abstract** Pilumnid crabs: *Pilumnopus convexus* (Maccagno, 1936) 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 crabs. The present study reports the presence of the 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 specimens of 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* 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 species and other species attempted us for collected from two location in Iraqi coast during low tide at the intertidal zone of Khor Al-Zubair canal and coast of South Al- Faw city, Basrah Iraq. 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-MS) (collection number: 40, for *P. convexus*).

The specimens of 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).



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

### 2 Results

In this study specimens of 13 species from two location in Iraqi coast of seven Brachyuran crabs families including, Macrothalmidae, Portunidae, Pilumnidae, Ocypodidae, Camptandriidae, Varunidae and Sesarmidae (Brachyura) were observed and collected with abundant numbers (Table 1).

Table 1 List of Brachyuran crabs species were observed in two locations during periods at collected samples in the present study

Species list	Location		Zonation
	Khor al- Zubair coast	South Al- Faw city coast	
1-Family Ocypodidae:			
<i>Uca sindensis</i> (Alcock, 1900)	+	-	L
<i>Uca annulipes</i> (H. Milne Edwards, 1852)	-	+	M- L
2-Family Pilumnidae:			
<i>Pilumnopus convexus</i> (Maccagno, 1936)	+	-	L
<i>Eurycarcinus orientalis</i> (Milne Edwards, 1867)	+	+	H
3-Family Macrothalmidae:			
<i>Macrothalmus dentipes</i> (Lucas, 1836)	-	+	H- M- L
<i>Macrothalmus laevis</i> (A. Milne-Edwards, 1867)	-	+	H- M- L
4- family; Camptandriidae			
<i>Nasima dotilliformis</i> (Alcock, 1900)	+	+	M-L
5- Family Varunidae			
<i>Eriocheir sinensis</i> (H. Milne Edwards, 1853)	+	+	L
<i>Metaplex indica</i> (H. Milne Edwards, 1852)	-	+	L

Continued Table 1

Species list	Location		Zonation
	Khor al- Zubair coast	South Al- Faw city coast	
6-Family Portunidae:			
<i>Portunus pelagicus</i> (Linnaeus, 1758)	+	+	S
7-Family Sesarmidae:			
<i>Nanosarma sarii</i> (Naderloo and Yurkay, 2009)	+	+	L
<i>Parasesarma persicum</i> (Naderloo & Schubart, 2010)	+	-	H
<i>Parasesarma plicatum</i> (Latreille, 1803)	-	+	H- M

Note: +: present; -: absent; Zonation was divided into H: Higher intertidal; M: middle intertidal; L: lower intertidal; S: subtidal

## 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).

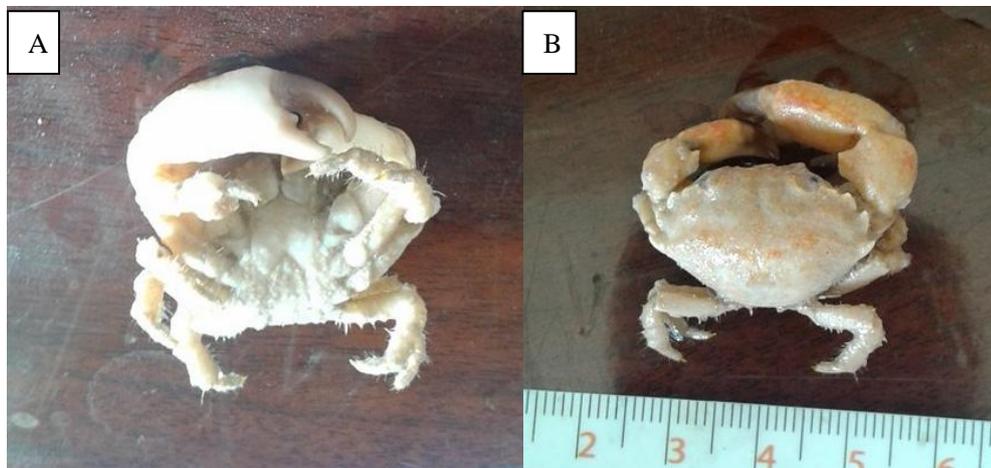


Figure 2 *Pilumnopeus convexus* male general view

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

### 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.

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.

## 2.3 Habitat

*P. convexus* 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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