

# The Sesarmid crab *Parasesarma persicum* Naderloo and Schubart, 2010 (Crustacea: Decapoda: Brachyura: Sesarmidae), New to the Iraqi Coastal Waters of Khor Al-Zubair and Shatt Al-Basrah Canal, Basrah, Iraq

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## Abstract

Specimens of the sesarmid crab *Parasesarma persicum* Naderloo and Schubart, 2010 were collected from the intertidal zones of Khor Al-Zubair and Shatt Al-Basrah Canal, Basrah, Iraq during the period from June 2009 to May 2010. A note on the morphological features and photographs of the species are provided to confirm its identification. *Parasesarma persicum* is the only species of the genus known in Iraqi coastal water.

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**Keywords:** *Parasesarma persicum*, Khor Al-Zubair, Shatt Al-Basrah canal, Basrah, Iraq.

## 1. Introduction

The sesarmid genus *Parasesarma* De Man, 1895 (type species *Cancer quadratus* Fabricius, 1798) currently contains 33 species (Ng *et al.*, 2008, Rahayu and Ng 2009, Naderloo and Schubart 2010, Koller *et al.*, 2010). As discussed by Rahayu and Ng (2010), the taxonomy of the genus is one of the most problematic issues in the Sesarmidae, with many of the species, now included in it, and is not well known. Thus, a revision of *Parasesarma* is clearly necessary. One of the most frequently reported species in the Indo-West Pacific is *P. plicatum* (Latreille, 1803). This species has long been believed to have a wide distribution with records from East Africa (Lenz and Richters, 1881; De Man, 1889; Borradaile, 1907; Crosnier, 1965), the Arabian Gulf (Apel, 2001), the Gulf of Bengal and Andaman Sea (its type locality) (Latreille, 1803), and East Asia (as *P. affine*) (Tesch, 1917). Only recently, the validity of the originally described species has been accepted, and this way the presumed range of *P. plicatum* becomes more restricted (Rahayu and Ng, 2010). Naderloo and Schubart (2010) recently described *P. persicum*, a species that resembles *P. plicatum*, from different localities in Persian-Arabian Gulf based on the morphological and molecular characters. This paper is to report the occurrence of *P. persicum* in Iraqi coastal water for the first time.

## 2. Materials and Methods

Specimens reported in this study were collected during a biodiversity monitoring project on the brachyuran fauna of the intertidal zones of Khor Al-Zubair and Shatt Al-Basrah during the period from June 2009 to May 2010. The material was mainly collected by hand and preserved in 70% ethanol. They are deposited in the Marine Science Centre (MSC, 22), University of Basrah, and the Zoological Reference Collection (ZRC) of the Raffles Museum of Biodiversity Research, the National University of Singapore. The abbreviations CL and CW indicate the carapace length and carapace width, respectively. Measurements given in text are given in millimeters.

### 2.1. Study area

Khur Al-Zubair is an extension of the Persian-Arabian Gulf waters in the lower reaches of Mesopotamia (Fig 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). The topography of the Khor Al-Zubair looks like a spindle with tapering ends at the northern and southern ends. The northern end receives fresh water influx of average 700 m<sup>3</sup>/sec throughout the tidal cycle. The current in the Khor is characterized by one direction throughout the tidal cycle towards the southern end (Arabian Gulf), with velocity exceeding 2m/sec during ebb tide and 0.66 m/sec in flood tide. At the southern end, the water discharge reaches 10000 m<sup>3</sup>/sec with velocity range of 0.8-5.78 m/sec and

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with big tidal range at the Umm-Qasar reaching 4.3m. (Al-Badran *et al.*, 1996).

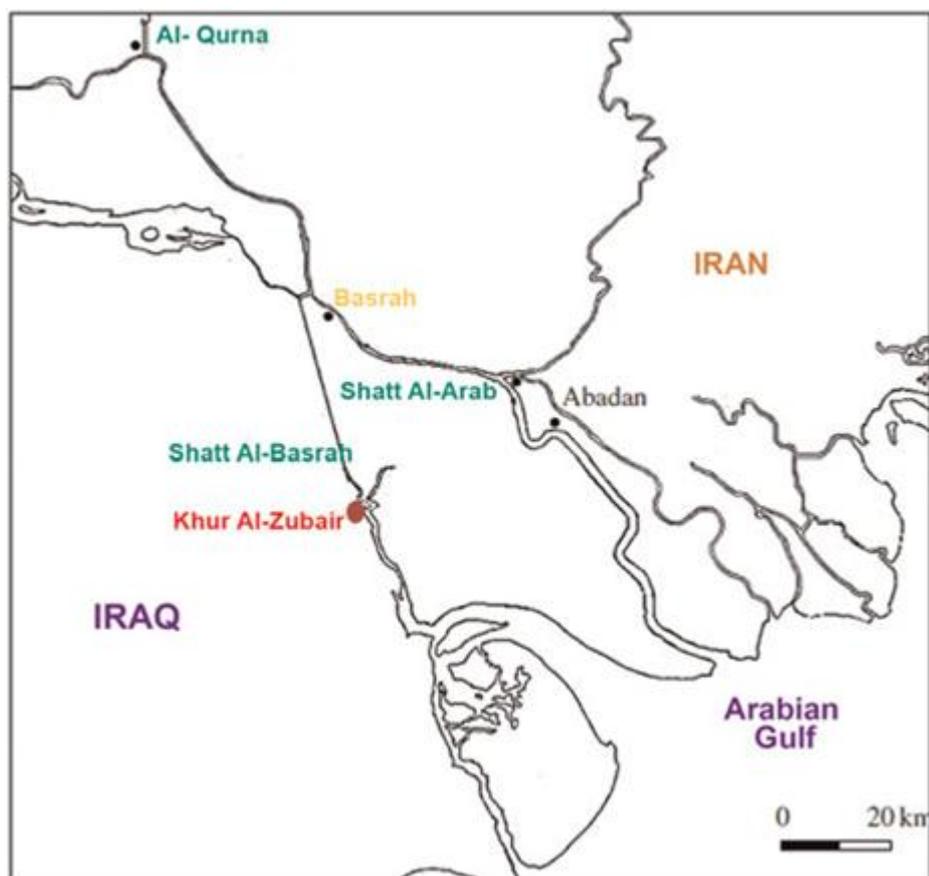


Fig. 1. Sampling sites.

### 3. Results

#### 3.1. Systematic account

Family Sesarmidae

Genus *Parasesarma* De Man, 1895

*Parasesarma persicum* (Figs. 1a, b, 2a–g, 3a–d, 5a, 6)

*Sesarma plicata* – Clayton, 1986: 86. *Sesarma* (*Parasesarma*) *plicata* – Jones, 1986: 160-161, pl. 46. *Sesarma* (*Parasesarma*) *plicatum* – Al-Ghais and Cooper, 1996: 414-415, (Fig. 4).

*Parasesarma plicatum* – Tirmizi and Ghani, 1996: 151–153, (Fig. 58); Apel and Türkay, 1999: 133; Apel, 2001: 119; Naderloo and Schubart, 2009: 61 (not *Sesarma plicata* Latreille, 1803).

*Parasesarma persicum* – Naderloo and Schubart, 2010: 33-43, (Figs. 1-4).

#### 3.2. Material examined

2 males (CL 26.4× CW 33.0, CL 25.2×CW 32.3), 2 females (CL 18.4× CW 24.4, CL 17.8× CW 23.7) from Shatt Al-Basrah Canal; 2 males (CL 23.4× CW 29.5, CL 22.4× CW 28.6) from Khor Al-Zubair; (all measurements in mm).

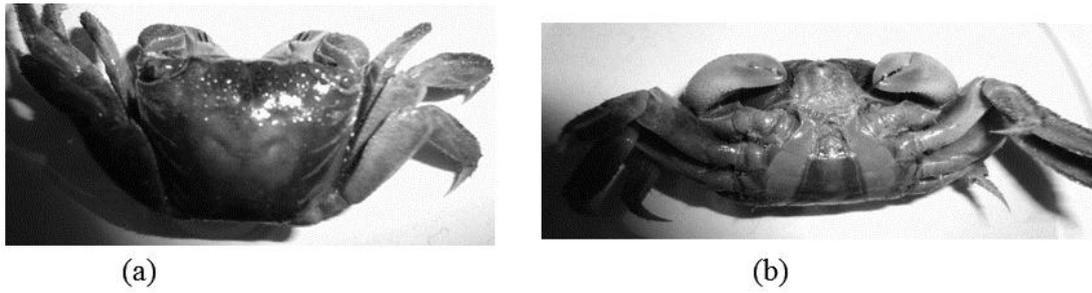
Fig. 2. *Parasesarma persicum*, male (CL 23.4× CW 29.5 mm) collected from Khor Al-Zubair : (a) dorsal view; (b) ventral view.

### 4. Diagnosis

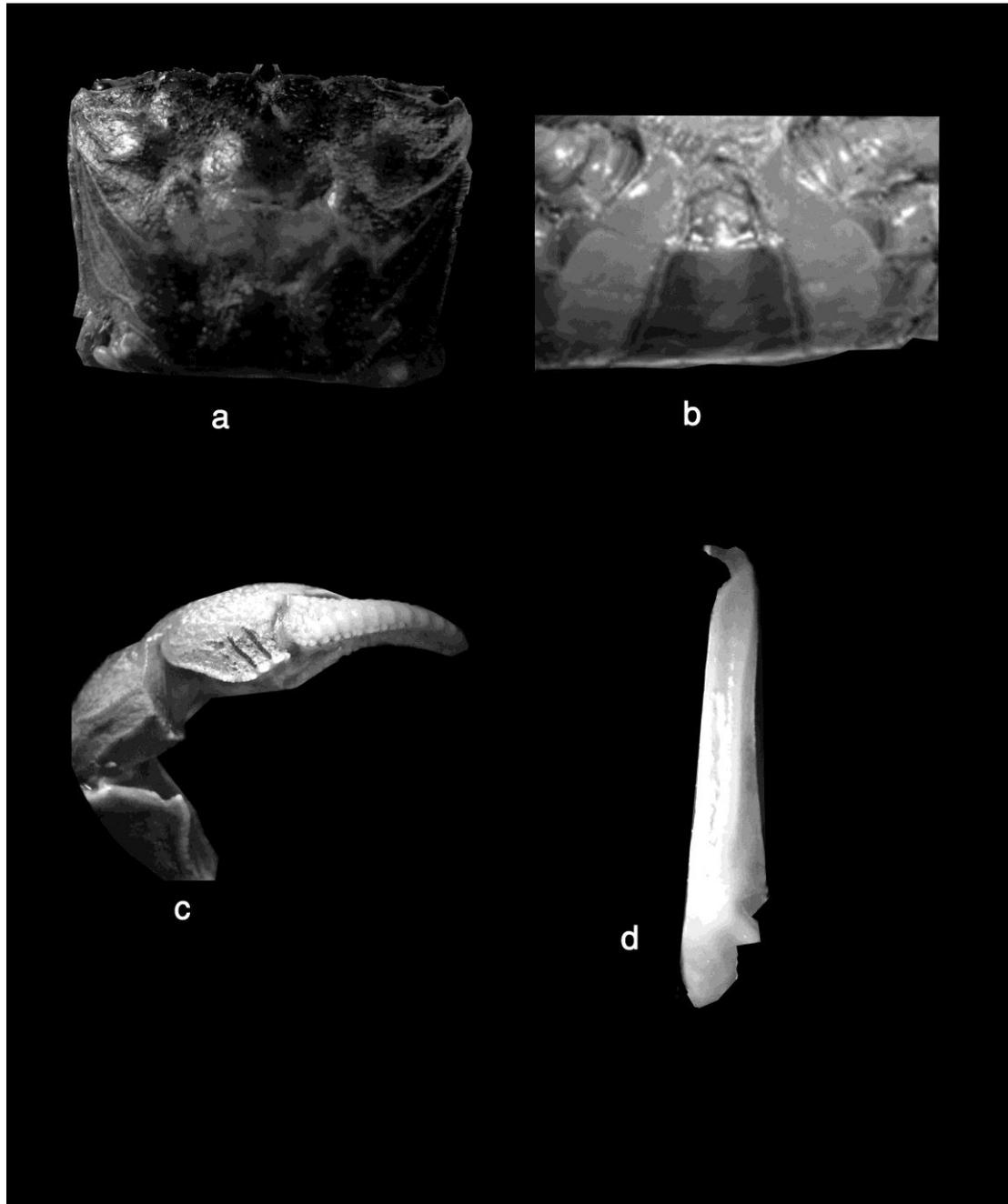
Carapace squarish (Figs. 2a and 3a) is about 1.3 times as broad as long; maximum width is slightly behind external orbital angle; dorsal surface of carapace is relatively convex, smooth, with sparse tufts of short setae (especially distinct on frontal and branchial regions); carapace regions are mostly well defined; frontal region is sharply deflexed, four-lobed, nearly equal-sized, with narrow and deep groove between median lobes, extending onto gastric region, separated from laterals by shallow groove; gastric region is well defined, a pair of round depressions on anterior portion, a pair of depressions on posterior portion, two very small linear depressions on middle part of posterior portion; cardiac region is separated from intestinal region by low depression; small transverse depression is immediately behind supra-orbital margin; six ridges are on posterolateral region, various-sized, smooth, curved, beset with short setae.

Abdomen of male (Figs. 2b, .3b) is relatively short triangular, third segment widest; the sixth segment is slightly longer than the fifth, gently converging distally; telson is small, slightly longer than the sixth segment; margins of segments are all with short setae.

Figure 3. *Parasesarma persicum*, male (CL 26.4× CW 33) collected from Shatt Al- Basrah Canal: (a) dorsal surface of carapace; (b) abdomen and telson; (c) right



**Figure 2.** *Parasesarma persicum*, male (CL 23.4× CW 29.5) collected from Khor Al-Zubair: (a) dorsal view; (b) ventral view



**Figure 3.** *Parasesarma persicum*, male (CL 26.4× CW 33.0) collected from Shatt Al-Basrah Canal: (a) dorsal surface of carapace; (b) abdomen and telson; (c) right major chela, outer view; (d) right first male gonopod, ventral view

major chela, outer view; (d) right first male gonopod, ventral view.

Chelipeds ( Fig. 3c) are equal to subequal to each other or unequal, relatively large. Ischium is with small granules on anterior margin. Merus is with finely granulated transverse ridges on outer surface; inner surface is smooth. Carpus is with anterior angle produced; outer surface is with transverse line of small granules; inner surface is with longitudinal line of small granules, bundle of relatively long setae proximally. Manus is granulated on outer surface; proximal lower portion is with small granules and oblique granulated ridges; two prominent pectinate crests are on upper surface, sometimes additional small one behind them; two transverse rows of granules are on proximal part; inner surface is granulated on lower half; a transverse row of granules is near base of movable finger; lower margin is densely granulated, slightly concave near base of immovable finger; upper margin is proximally arched, irregularly granulate, distally with two large tubercles. Movable finger is gently arched downwards, markedly curved inwards distally, with 11 or 12 large tubercles along upper surface, proximally oval, distally becoming small, round, and low; 12 or 13 small tubercles are on proximal half of movable finger.

Walking legs are medium-sized, flattened; merus of second walking leg is relatively wide, about 1.9 times as long as wide; that of last leg is about 1.8 times as long as wide. Merus of second walking leg is serrated, with acute subdistal spine on anterior margin; posterior margin is smooth, distally slightly serrated; posterior surface is with transverse ridges, minutely granulated; posterior surface of merus of last walking leg is smooth, with very few ridges on anterior part, curved smooth ridge on posterior part. Carpus is with one and two carinae on anterior and posterior surfaces of second leg, respectively; carpus of last leg is with one carina on posterior surface. Propodus of second leg is with carina on posterior and anterior surfaces; propodus of last leg is without carina on anterior surface.

First male gonopod (Fig. 3d) is relatively stout, straight; stem is triangular in cross section, distinct longitudinal depression along ventrolateral surface; sperm channel is along dorsal face, curving outwards dorsally, gonopore on dorsal margin of chitinous process, subterminal; chitinous process is long, curved outwards, at angle of about 45°, slightly concave basally on mesial surface, with distinct depression on lateral surface; long setae is on distal ventromesial border and around terminal process, few short setae along stem.

## 5. Remarks

The specimens from Iraq agree well with the original description of *P. persicum*, based on the material from the Arabian Gulf. *Parasesarma persicum* was very often misidentified as *Chiramantes boulengeri*, a native freshwater species that is confined in its distribution to the upper part of Shatt Al-Arab River. For *P. persicum*, the distribution is restricted in the Arabian Gulf, from lower reaches of Shatt Al-Arab River, Fao region, mouth of the NW of the Arabian Gulf, Khor Al-Zubair, and Shatt Al-Basrah Canal. *Parasesarma persicum* is the only species of the genus known in Iraqi coastal water. The habitat of

*P. persicum* in Khor Al-Zubair differs from that of Shatt Al-Basrah Canal. In Khor Al-Zubair, the crabs live on muddy-silty substrata at the upper intertidal zone, some living on decayed leaf materials, others live under old boats. Whereas, in Shatt Al-Basrah Canal, in front of a dam, the crabs live under stones (artificial stones) and among the aquatic plants *Phragmites australis*.

The examination of the present specimens shows that the crabs from Shatt Al-Basrah Canal are obviously larger in size than those collected from Khor Al-Zubair. Some physical-chemical characteristics were recorded for both regions, as follow:

Shatt Al-Basrah: May 2010, air temperature, 39°C; water temperature, 29°C; pH, 8.46; salinity, 8 psu; dissolved oxygen (DO), 11.86 mg/L; total dissolved solids (TDS), 9.106 g/L. Khor Al-Zubair: May, 2010, air temperature, 39°C; water temperature, 28°C; pH, 8.46; salinity, 22 psu; dissolved oxygen (DO), 8 mg/L; total dissolved solids (TDS), 11 g/L.

The differences in sizes of *P. persicum* at both sites may be assigned to the differences of the food items, optimum salinity requirements for the growth, and to the effect of high pollution on the growth of the crab by the crude oil at Khor Al-Zubair.

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