Nauplius
THE JOURNAL OF THE BRAZILIAN CRUSTACEAN SOCIETY

e-ISSN 2358-2936
www.scielo.br/nau
www.crustacea.org.br

SHORT COMMUNICATION

First confirmed record of *Sarmatium crassum* Dana, 1851 (Crustacea: Decapoda: Sesarmidae) from India

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ABSTRACT

The present paper confirms the occurrence of the sesarmid crab *Sarmatium crassum* Dana, 1851 in India. The species has so far been recorded from Samoa, Tahiti, New Caledonia, eastern Australia, Philippines, Madagascar, South Africa, Tanzania, and Eritrea (Red Sea). This is the first record of the species from India.

KEYWORDS

Brachyura, Goa State, mangrove, new record, West coast of India

The taxonomy of the genus *Sarmatium* Dana, 1851, has a very confused history and has been revised on several occasions (Tesch, 1917; Serène and Soh, 1970; 1971; Davie, 1992). The genus *Sarmatium* is closely related to *Neosarmatium* Serène and Soh, 1970 and *Metagrapsus* H. Milne Edwards, 1853 but can be differentiated on the basis of the following characters: ocular peduncle swollen basally, cornea constricted and reduced (*versus* ocular peduncle not swollen basally, cornea bulging and prominent in *Neosarmatium* and *Metagrapsus*; cf. Serène and Soh, 1970; Davie, 1992). *Sarmatium* is currently represented by five species which are distributed in the Indo-Pacific region (Davie, 1992): *Sarmatium crassum* Dana, 1851,

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SUBMITTED 30 September 2020
ACCEPTED 07 July 2021
PUBLISHED 24 September 2021

DOI 10.1590/2358-2936e2021042

the type species; *Sarmatium germaini* (A. Milne-Edwards, 1869); *Sarmatium striaticarpus* Davie, 1992; *Sarmatium hegerli* Davie, 1992; and *Sarmatium unidentatus* Davie, 1992. Alcock (1900) recorded *S. crassum* from India on the basis of a single female specimen from Nicobar Island. Davie (1992) commented that this record from India by Alcock (1900) is doubtful, as the diagnostic characters of *S. crassum* are present on male individuals only; the identification of a female specimen may not be precise. Since the specimen was not traceable in the crustacean collection of the Zoological Survey of India, Kolkata, we could not confirm the identity of the *S. crassum* female specimen collected by Alcock (1900). In the present study, we confirm the occurrence of *S. crassum* from mainland India on the basis of a single male specimen collected from Goa State, on the western coast of India.

Only one male specimen was collected from mangroves of the Chapora estuary in Goa. The specimen was cleaned, photographed and preserved in 90 % ethanol, and deposited in the Zoological Reference Collection (LFSc.ZRC), Department of Life Sciences, Hemchandracharya North Gujarat University, Patan, Gujarat, India. Abbreviations: CW, carapace width; CL, carapace length; G1, male first gonopod; coll., collector. Morphological terminology used in this article follows Davie (1992).

Taxonomy

Order Decapoda Latreille, 1802

Superfamily Grapsoidea MacLeay, 1838

Family Sesarmidae Dana, 1851

Genus *Sarmatium* Dana, 1851

***Sarmatium crassum* Dana, 1851**
(Fig. 1)

Sarmatium crassum Dana, 1851: 251; H. Milne Edwards, 1853: 189; De Man, 1887: 660; Barnard, 1955: 28, fig. 9; Crosnier, 1965: 74, figs. 121–124, pl. 5, fig. 1; Serène and Soh, 1970: 397, 405 (list); Fishelson, 1971: 128, 130 (list); Davie, 1992: 81, figs. 1A, 2A–C; Ng *et al.,* 2008: 223 (list).

Sarmatium crassum [doubtful identification, not confirmed]: Nobili, 1899: 505 (list); Alcock, 1900: 426; Tesch, 1917: 215; Dev Roy and Nandi, 2012: 216 (list); Trivedi *et al.,* 2018: 73 (list).

not *Sarmatium crassum*: Serène and Soh, 1970: pl. 4C, D; 1971; 237, fig. 2, pl. 2 [= *S. striaticarpus*]

Material Examined. One male, CL 9.6 mm; CW: 10.6 mm, LFSc.ZRC–155, India, Goa State, Chapora estuary (15°37.953'N 73°45.765'E), mangrove habitat, 12 July 2016, coll. M. Bhat.

Diagnosis (modified from Davie, 1992). Carapace (Fig. 1a) slightly broader than long, glabrous, deeply vaulted, punctate with setae arranged sparsely on branchial lines. Regions moderately defined with mesogastric distinct. Anterolateral margins regularly convex with 2 blunt teeth behind exorbital angle. Front bilobed. Branchial ridges prominent forming series of short broken granular striations. Inner orbital tooth well developed; ocular peduncle swollen basally, cornea constricted and reduced. Chelipeds (Fig. 1a) subequal, large, robust. Merus posterior border with minutely granular striations; distinct subdistal spine; carpus with small spine at inner angle. Palm upper surface with series of transverse grooves separating swollen ridges (Fig. 1d), distal margin of ridges granular with row of 8 pectinated comb-like teeth. Dactylus (Fig. 1c) dorsal surface of males bearing 4 large, broad, chitinous tubercles proximally; first proximal tooth placed distally from articulation. Male pleon relatively narrow, third somite widest, telson subequal to the sixth somite in length, longer than wide. G1 (Fig. 1e) moderately stout; slightly curved, dorsal surface of shaft flattened with poorly developed protuberance on the distal end; apical process (Fig. 1f) corneous; strongly produced; straight.

Remarks. The specimen examined in the present study agrees with the description given by Dana (1851) and Davie (1992) *viz*., the cheliped carpus upper surface having a large patch of tiny, flattened, squamous granules situated distally behind articulation with the palm (Fig. 1d); Palm upper surface with subparallel ridges and grooves. Cheliped dactylus with first proximal tooth placed distally from articulation.

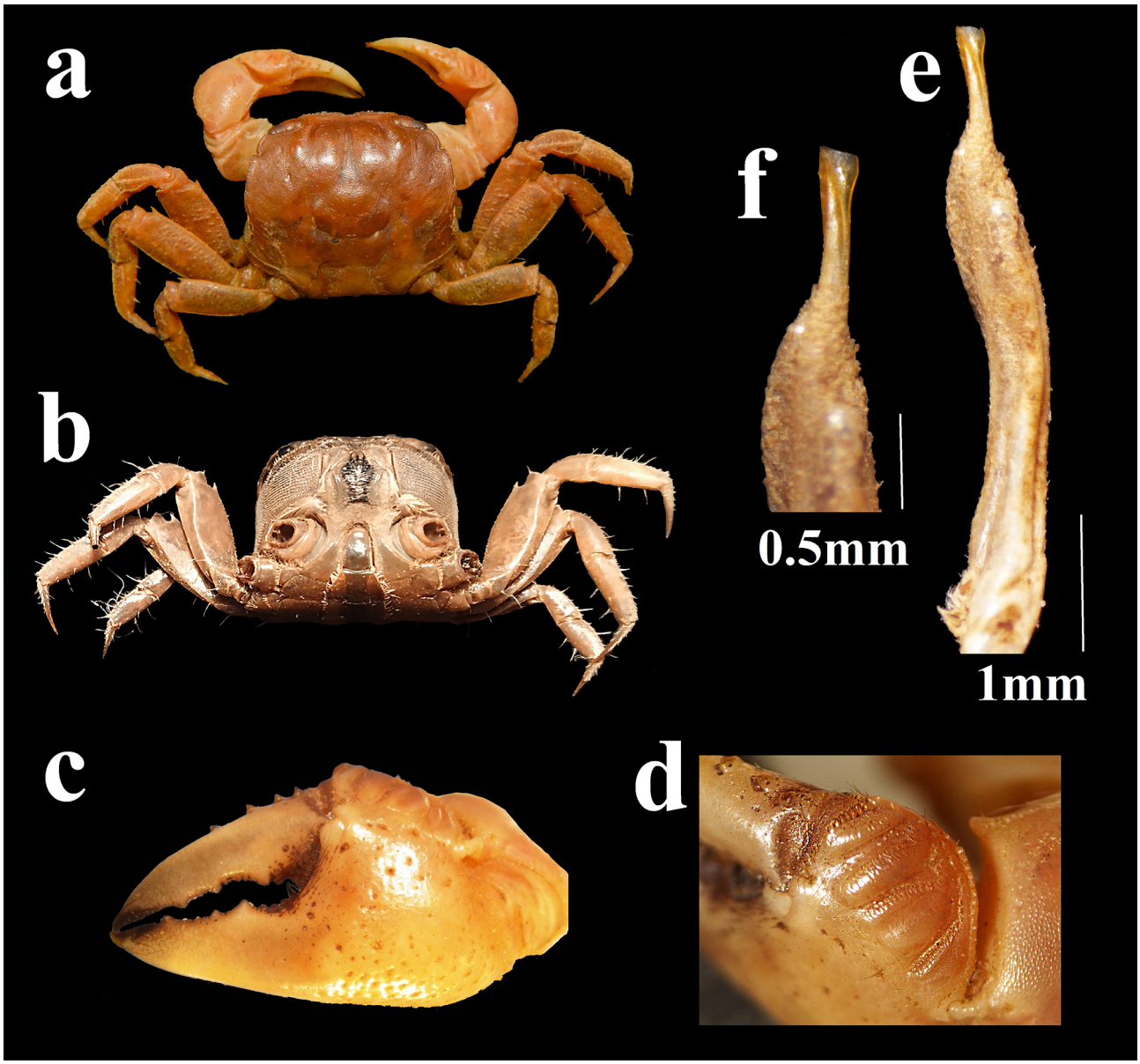

Figure 1. *Sarmatium crassum* Dana, 1851, male (LFSc.ZRC– 155), CL 9.6 mm; CW: 10.6 mm: **a**, dorsal habitus; **b**, ventral habitus; **c**, left chela, outer view; **d**, upper surface of palm of left chela; **e**, left G1, dorsal view; **f**, distal tip of G1, dorsal view.

Sarmatium crassum resembles *S. striaticarpus* in having the carapace broader than long (1.1 times), deeply vaulted; surface smooth, shiny, punctuate, chelipeds subequal, large and robust, ambulatory legs of medium size and compressed, G1 stout and slightly curved, dorsal surface of shaft flattened and completely calcified. However, *S. crassum* can be differentiated from *S. striaticarpus* based on the following characters: all the ridges on the upper surface of the palm subparallel (Fig. 1d) (*versus* the proximal-most corrugated ridge is separated from the next broad groove by a triangular space in *S. striaticarpus*, cf. Davie, 1992: fig. 4C), the first proximal tooth on the dactyl of the cheliped placed somewhat distally from the articulation (Fig. 1c) (*versus* the first proximal tooth on the dactyl of the cheliped placed almost on the very edge of the proximal end in *S. striaticarpus*, cf. Davie, 1992: fig. 4B) and G1 with poorly developed protuberance located at the distal end of the shaft (Fig. 1e, f) (*versus* G1 with well developed protuberance in *S. striaticarpus*, cf. Davie, 1992: fig. 3E).

Sarmatium crassum has thus far been reported from the type locality, Samoa (Dana, 1851; 1852); South Africa (Barnard, 1955); Madagascar (Crosnier, 1965); Tanzania (Hartnoll, 1975); Eritrean coast of the Red Sea (Fishelson, 1971; Holthuis, 1977); India (present study); Philippines (Davie, 1992); Australia (McNeill, 1968; Davie, 1992); New Caledonia (Serène, 1973), and Tahiti (Davie, 1992). The records of *S. crassum* by Nobili (1899) and Tesch (1917) are questionable due to the following reasons: Nobili (1899) did not provide the diagnostic characters of the specimen which was collected from Sumatra and hence it could be attributable to *S. striaticarpus*. Tesch (1917) reported the species from the 'Pacific' only on the basis of a single female specimen lacking diagnostic characters and hence the record becomes questionable (Davie, 1992).

In India, this species was recorded from the Nicobar Islands by Alcock (1900) on the basis of a single female specimen (CL 8 mm, CW 9 mm) (the specimen is not traceable in the Zoological Survey of India, Kolkata where it was deposited). This record made by Alcock (1900) also appeared in the brachyuran crab list of the Andaman and Nicobar Islands and India prepared by Dev Roy and Nandi (2012) and Trivedi *et al.* (2018), respectively. But according to Davie (1992), the record of *S. crassum* from Nicobar Islands is doubtful because the main diagnostic character of the species, such as the presence of distinct ridges and grooves on the upper surface of the palm of chelipeds, are only present in males and not in females and therefore cannot consider it as a confirmed record. In the present study, one male specimen was collected and examined, and the distinct taxonomic characters are illustrated and described to elucidate the first confirmed report of *S. crassum* from India.

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