

Short Communication

New records of brachyuran crabs from Odisha coast

A Gokul* & S K Mohapatra

Estuarine Biology Regional Centre, Zoological Survey of India, Gopalpur-On-Sea, Ganjam, Odisha – 761 002, India
*[E-mail: arunachalamgokul@gmail.com]

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Crabs collected from trawl by-catch operating along the Paradeep and Arjyapalli fish landing centres revealed three species, namely *Calappa exanthematos* Alcock & Anderson, 1894 (Calappidae), *Atergatis integerrimus* (Lamarck, 1818) (Xanthidae), and *Menippe rumphii* (Fabricius, 1798) (Menippidae) which are reported for the first time from Odisha coast.

[Keywords: Crabs, Estuary, Marine, New Records, Odisha]

Introduction

The coastal waters of India are home to about 910 species of marine crabs belonging to 361 genera and 62 families, of which the state of Odisha is known to have 161 species belonging to 88 genera and 31 families of marine brachyuran crabs¹. India has 09 maritime states excluding Andaman & Nicobar Islands in the east and Laccadive in the west, and the total coastline comprises about 8118 km^(ref. 2). The coastline extension of Odisha is 480 km^(ref. 3). The study on decapod fauna of Odisha dates back to the late nineteenth century. Recent studies⁴⁻¹¹ augmented taxonomic research on brachyuran crabs of the Odisha coast. Rath & Dev Roy¹² reported 22 species of brachyuran crabs belonging to 16 genera and 4 families from Vansadhara, Nagavali and Bahuda estuaries. In addition to these reports, the present study documents three new records of marine crabs from the Odisha coast.

Materials and Methods

The crabs were collected by hand picking method as by-catch from Paradip fish landing centre (20°16'24" N; 86°40'13" E) and Aryapalli fish landing centre (19°18'23" N; 84°57'51" E) (Fig. 1). The crabs were brought to the laboratory in ice boxes; later fixed and preserved in 10 % formalin. The samples were observed through hand lenses and a stereo zoom microscope Leica S9i. The specimens were identified

using standard keys and descriptions provided by Alcock & Anderson¹³, Karim *et al.*¹⁴ and Vartak *et al.*¹⁵. The photographs were taken by Nikon Coolpix p900 and camera microscope Leica S9i. The measurements expressed in millimetres are for carapace width and carapace length. The specimens are deposited in the National repository of Estuarine Biology Regional Centre, Zoological Survey of India, Gopalpur-on-Sea.

Results

Order: Decapoda Latreille, 1802

Family: Calappidae De Haan, 1833

Genus: *Calappa* Weber, 1795

1. *Calappa exanthematos* Alcock & Anderson, 1894

Materials examined: 01 Male (105.07×69.69 mm) (Fig. 2); Regd. No: EBRC/ZSI/Cr-13666; 20°16'24" N; 86°40'13" E, Date: 16 February 2022.

Brief description: Carapace oval, anterior part bearing tubercles progressively decreasing in size posteriorly, posterior part smoother. Front broad, bilobed. Posterolateral margin of clypeiform expansion with 7 teeth (Fig. 2d). Cheliped carpus with 3 distal blunt spines; palm with 6 dorsal spines, several small tubercles on the ventral and ventrolateral surfaces; dactylus of major chela with distinct basal curved cutting tooth, occlusal margin of pollex with 3 molariform teeth; dactylus of minor chela slender, curved, bearing denticles, occlusal margin of pollex minutely dentate. Ambulatory legs concealed under clypeiform expansion. Male pleon with somites 3 – 5 fused (Fig. 2e). G1 slender, hook shaped, distal tip acuminate, recurved, unarmed (Fig. 2f). Carapace pale creamy, tubercles on anterior portion with red base, posterior portion with reddish spots, and small pale-coloured tubercles; chelipeds with few large red and small cream-coloured tubercles on the outer side of propodus.

Distribution: India: Gujarat, Maharashtra, Kerala, Andhra Pradesh and Tamil Nadu¹. Elsewhere: Pakistan, Iran and Oman¹⁶.

Remarks: Earlier, this species was synonymised with *Calappa japonica* Ortmann, 1892, but again reestablished as a distinct species¹⁷. *Calappa*

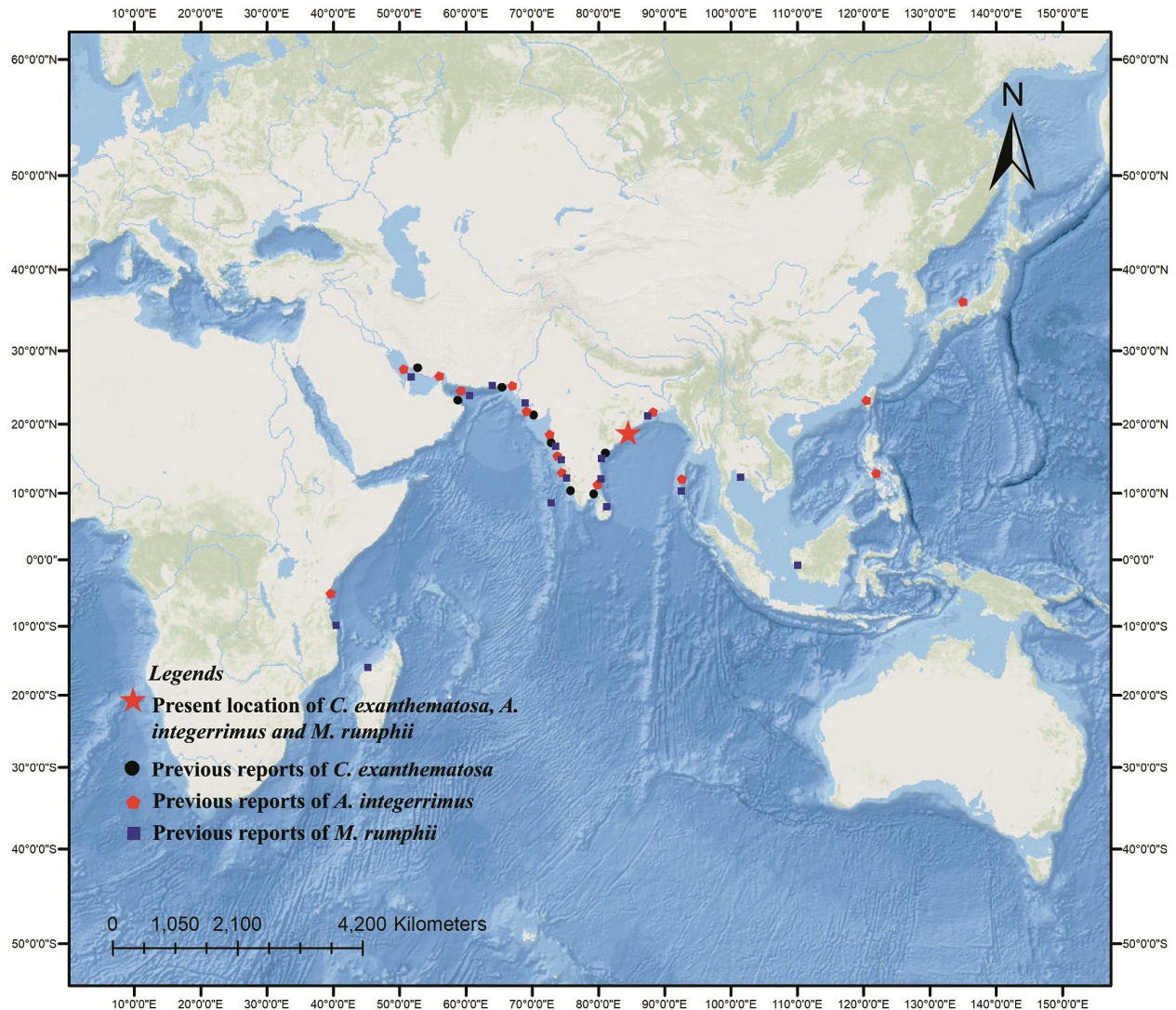


Fig. 1 — Present and previous distributional records of *Calappa exanthematosa* Alcock & Anderson, 1894; *Atergatis integerrimus* (Lamarck, 1818), and *Menippe rumphii* (Fabricius, 1798)

exanthematosa is distinguished by having irregular distribution of red-coloured tubercles present on the carapace, which is mostly absent on the other species of *Calappa* except *Calappa pustulosa* in which the tubercles are distributed regularly. *Calappa exanthematosa* is distinctly separated by its live coloured and the presence of its rose-colored tubercles on the carapace (vs. absence of red-coloured tubercles in *Calappa lophos* (Herbst, 1782)); a distinct uneven row of tubercles is considered as the distinguishing character for species confirmation. In *C. exanthematosa*, the crest of chela bear 7 spines (vs. 6 in *C. lophos*); no coloured dots present on the posterior part of carapace in *C. exanthematosa* (vs. maroon-coloured dots present on the posterior part of the carapace in *C. lophos*)¹⁸.

Order: Decapoda Latreille, 1802
 Family: Xanthidae MacLeay, 1838
 Genus: *Atergatis* De Haan, 1833

2. *Atergatis integerrimus* (Lamarck, 1818)

Materials examined: 01 Male (89.06×57.02 mm) (Fig. 3); Regd. No: EBRC/ZSI/Cr-13666; 19°18'23" N; 84°57'51" E; Date: 27 February 2022.

Brief description: Carapace Oval, its width greater than length. Carapace and chelipeds with minute pits. The number and size of pits descending from anterior to posterior. Eyes with reduced eyestalk. Dactylus of the chelipeds blackish, and the tip of the fingers white. Ambulatory legs are little flattened without spines and tubercles. Gonopod (G1) slightly S-

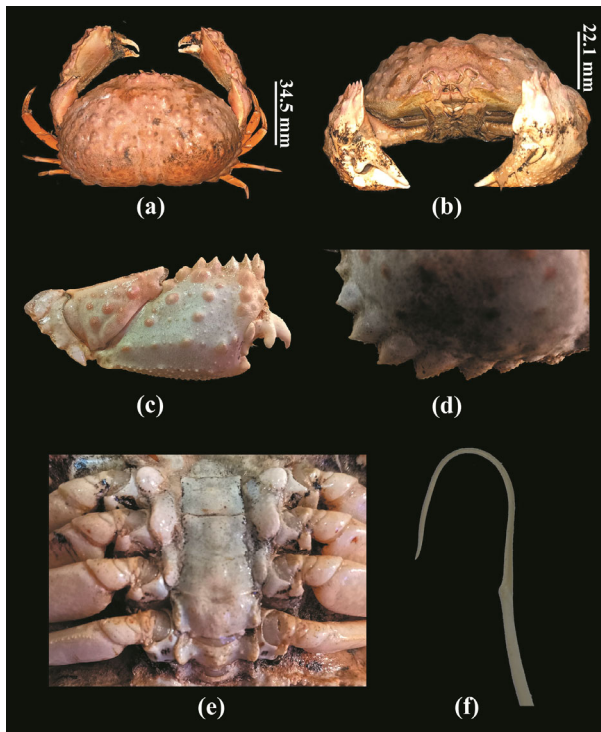


Fig. 2 — *Calappa exanthematosus* Alcock & Anderson, 1894: (a) Dorsal view, (b) Frontal view, (c) Right cheliped outer view, (d) Posterolateral part of carapace showing 7 spines, (e) fused 3-5 pleonal somites, and (f) gonopod (G1)

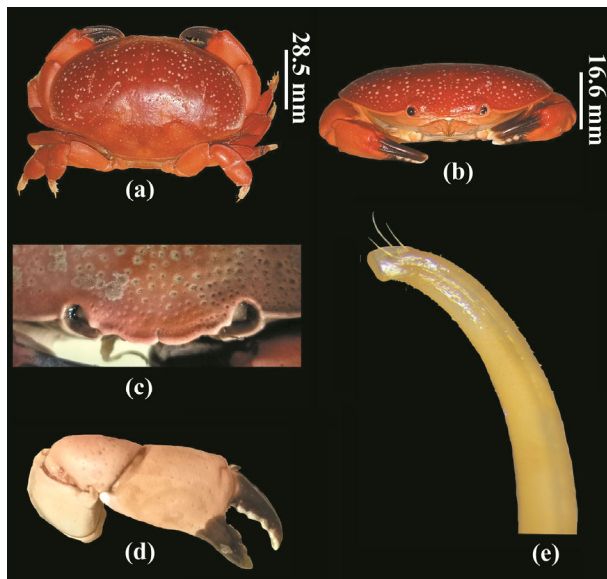


Fig. 3 — *Atergatis integerrimus* (Lamarck, 1818): (a) Dorsal view, (b) Frontal view, (c) Frontal margin, (d) Left cheliped outer view, and (e) Gonopod (G1)

shaped. Proximal part of G1 wider and distal end taper gradually with its tip found blunt (Fig. 3e). Three large spines present just before the distal margin of tip. Colour of the carapace is brick red.

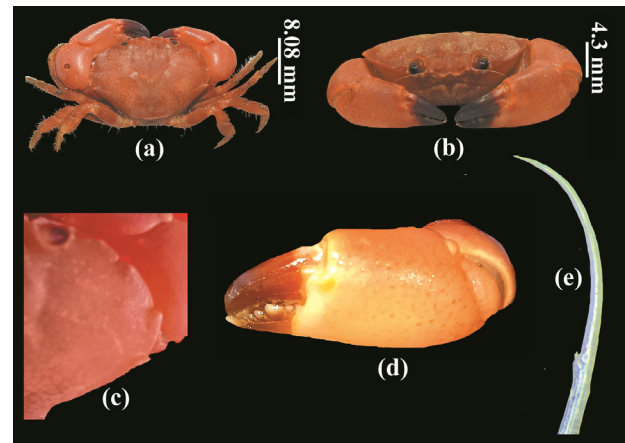


Fig. 4 — *Menippe rumphii* (Fabricius, 1798): (a) Dorsal view, (b) Frontal view, (c) Anterolateral margin of carapace, (d) Left Cheliped outer view, and (e) Gonopod (G1)

Distribution: Gujarat, Maharashtra, Goa, Karnataka, Tamil Nadu, West Bengal and Andaman & Nicobar Islands^{1,19-21}. *Elsewhere:* Zanzibar, Persian Gulf, Gulf of Oman, Strait of Hormuz, Pakistan, South India, Taiwan, Philippines and Japan²².

Remarks: *Atergatis integerrimus* can be easily distinguished from its related species through the presence of white-coloured minute pits on its carapace and chelipeds. *Atergatis integerrimus* closely resembles *A. laevigatus* A. Milne-Edwards (1865); however it is, distinguished by having narrow carapace with small white puncture like appearance. In addition, the presence of white coloured cheliped fingertip is considered a distinct character²³.

Family Menippidae Ortmann, 1893

Genus *Menippe* De Haan, 1833

3. *Menippe rumphii* (Fabricius, 1798)

Materials examined: 01 Male (23.11×16.34 mm) (Fig. 4); Regd. No: EBRC/ZSI/Cr-13666; 19°18'23" N; 84°57'51" E; Date: 24 August 2022.

Brief description: Carapace oval. Anterolateral margin with four blunt spines (Fig. 4c). The front having two large lobes (Fig. 4b). Four blunt tubercles present between eye and gastric lobe. Posterior margin of carapace convex. Eyes reddish in colour. Eye stalks small. Chelipeds unequal. Dactylus black in colour. Ambulatory legs setose. Dactyli pointed, not paddle shaped. Gonopod (G1) S-shaped (Fig. 4e). Proximal part of G1 wider and distal end taper gradually with its tip found blunt (Fig. 3e). Three large spines present just before the distal margin of tip. Colour of the carapace is brick red.

Distribution: *India:* Gujarat, Maharashtra, Goa, Karnataka, Tamil Nadu, Andhra Pradesh, West Bengal,

Lakhsadweep Island and Andaman and Nicobar Islands^{1,15,20,22,24}. Elsewhere: Africa, Madagascar, Persian Gulf, Gulf of Oman, Pakistan, Sri Lanka, Thailand and Indonesia²⁵.

Remarks: *Menippe rumphii* is distinguished by its prominent setose ambulatory legs, sometimes misidentified with *Pilumnus* spp., which has fur-like hairs on the whole body, including legs.

Discussion

Calappa exanthematos is distributed throughout Southern Asia and the Middle East. Distribution of *A. integerrimus* in the waters of Middle East countries and south-east Asian countries^{1,19-22} suggests this species has a wide distributional range and is not endemic to any local region. Out of the 15 species described under the genus *Menippe*, *M. rumphii* is the single species documented from India, and it is distributed throughout the coastal states of India. Presence of *M. rumphii* from Africa to Gulf of Oman and in Thailand and Indonesian waters^{1,15,20,22,24,25} indicates that this species is an Indian Ocean species having wide distribution. The Odisha coast is a part of the north-east coast of India and has various ecosystems like estuaries and mangrove forests²⁶. The number of crabs reported from north-east coast is less as compared to the southern east coast¹. New distributional records of these three species indicate need for further research for proper documentation of crab diversity from the region.

Conclusion

The three crabs described in the present study are recorded from almost all the coastal states and islands of India. Even though the Odisha coast is being well known for its marine faunal communities, the taxonomical studies on crustacean diversity have to be strengthened.

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Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

AG: Conceptualisation, formal analysis, supervision and manuscript writing; and SKM: Specimen collection, formal analysis and manuscript writing.

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