



New distribution record of buckler crab, *Cryptopodia angulata* (Decapoda: Brachyura: Parthenopidae), from the south Konkan coast, India

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Received: 07 Apr 2024 Revised: 13 May 2025
Accepted: 14 May 2025 Published: 11 Jun 2025

Short Communication

Abstract

The present study highlights the new distribution record of the buckler crab, *Cryptopodia angulata*, from the south Konkan coastal waters along the west coast of India. Three live specimens of *Cryptopodia angulata* were collected by a bottom trawling survey at 36 m depth from the coastal waters of Jaigad, Ratnagiri. This finding contributes to the understanding of *Cryptopodia angulata* distribution along the Indian coast.

Keywords: South Konkan coast, *Cryptopodia angulata*, bottom trawling, India

Introduction

The family Parthenopidae includes the genus *Cryptopodia* H. Milne Edwards, 1834, which has 15 known species and subspecies worldwide (Chen and Xu, 1991; Davie and Turner, 1995). Thirteen of these taxa are found throughout the Indo-West Pacific region: *Cryptopodia fornicate* (Fabricius, 1781); *Cryptopodia queenslandi* (Rathbun, 1918); *Cryptopodia dorsalis* (White, 1847); *Cryptopodia angulata* (Milne-Edwards and Lucas, 1841); *Cryptopodia angulata cippifer* (Alcock, 1895); *Cryptopodia colifer* (Flipse, 1930); *Cryptopodia pentagona* (Flipse, 1930); *Cryptopodia pan* (Laurie, 1906); *Cryptopodia spatulifrons* (Miers, 1879); and *Cryptopodia sinica* (Chen and Xu, 1991). The Americas are home to the other two species. This genus is distinguished by its enlarged carapace margins, which completely or almost completely enclose the ambulatory legs. For the first time, *C. angulata* specimen was reported in the Jaigad coastal water, which is situated along India's South Konkan coast. The specimen was encountered

during a bottom trawling survey in the coastal waters of Jaigad (13°7'36 "N, 80°17'52 "E), which is Maharashtra's first deep-water, all-weather, 24/7 operational private port and a major fishing harbour. Although the harbour has calm waters and is protected, it is subject to pollution from ship and dock effluents. A total of three live specimens were investigated in the present study. A vernier calliper was used to measure it to the closest 0.1 mm. Identification keys were used to confirm the species of the specimen, which was then identified, recorded, and preserved in a 4-5% formalin solution (Chiong and Ng, 1997; Davie and Turner, 1995; Sethuramalingam and Ajmalkhan, 1991). The preserved specimens have been placed at the Department of Fisheries Hydrography, College of Fisheries, Ratnagiri, Maharashtra, India.

Material and methods

Sampling design: Monthly sampling was carried out from December 2023 to April 2024 using a motorised commercial bottom trawl fishing vessel. The sampling area was divided into different stations along the Jaigad coastal area (Fig. 1). Trawling operations were conducted between (17° 16' 49" N; 73° 10' 54" E and 17° 16' 56" N; 73° 10' 38" E).

Systematic accounts

Phylum: Arthropoda

Class: Malacostraca

Order: Decapoda (Latreille, 1806)

Family: Parthenopidae (MacLeay, 1838)

Genus: *Cryptopodia* (Milne Edwards, 1834)

Species: *C. angulata* (Milne Edwards and Lucas, 1841)

Synonyms: *Cryptopodia angulata* var. *cippifer* Alcock, 1895.

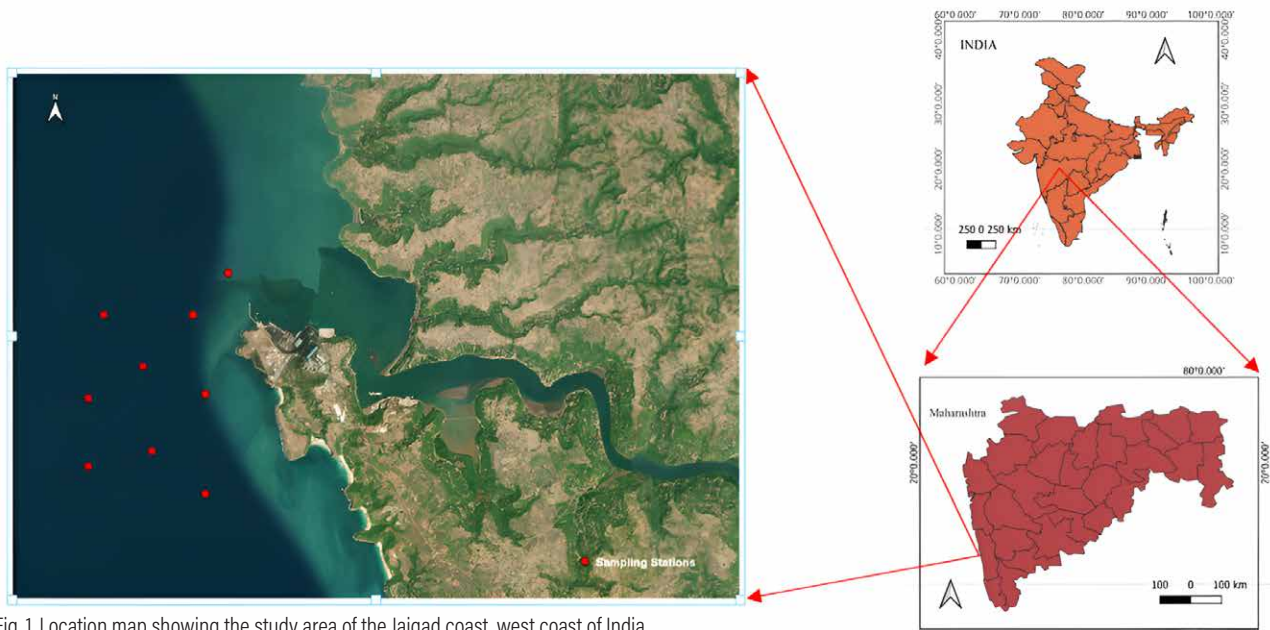


Fig. 1. Location map showing the study area of the Jaigad coast, west coast of India

Material examined

Three specimens, March 2024, coastal water, Jaigad, Ratnagiri (17° 18' 15.5808" N, 73° 9' 59.2308" E), coll. by Prathamesh J. Ade, depth 36 m, bottom trawl sampling.

Description

The carapace length of *Cryptopodia angulata* is 1.5 times greater than the breadth, with a carapace width of around 4 to 5 cm. The carapace has a convex and pentagonal shape. At the centre of the carapace, there are two spines on the posterior margin. At all angles, the margins are curved with dentate edges, forming a protective structure that completely encloses the abdomen and ambulatory legs beneath it. The teeth along the margins are simple and bifurcated. The carapace's dorsal surface is granular,

whereas the ventral surface is smooth. The carapace ranges in colour from pale pink to light brown. The eyes are circular and tiny, and there is a triangular depression with granular ridges in the centre of the carapace. The rostrum is triangular and pointy. The abdomen tapers toward the anterior portion and is quite small. The carpus is slightly spherical, the merus is flat, and the chelipeds are strong and granular with dentate borders on the anterior and posterior regions. The first pair of walking legs is the longest; they are smooth and slender, with dentate edges only on the merus top surface, as reported by earlier reports. The three individuals of buckler crabs (*Cryptopodia angulata*) were collected from a bottom trawling survey along the Jaigad coastal waters, Ratnagiri, Maharashtra, on 1st March 2024. The crabs were identified morphologically and confirmed as *Cryptopodia angulata* (Milne-Edwards and Lucas, 1841) (Table 1) (Fig. 2).



Fig. 2. *Cryptopodia angulata* a) Dorsal view, b) Ventral view (scale bar = 10 mm)

Table 1. Morphometrics of *Cryptopodia angulata*

Morphometric parameter	Range (mm)
Carapace width	28.5-29.1
Carapace length	48-49.5
Frontal width	6.8-7.2
Abdomen width	12-13.2
Abdomen length	5.8-6.3
Sternum width	9.8-10.4
Orbit length	1.6-1.9
Telson length	2.8-3.1
Chela Length	21.5-22.3
Dactyl length	8.8-9.3
Merus length	17.5-18.1
1 st walking leg length	24.7-25
2 nd walking leg length	23.9-24.2
3 rd walking leg length	22.3-22.8
4 th walking leg length	21.1-21.9

Records of *Cryptopodia angulata* (Milne-Edwards and Lucas, 1841) was first reported by Alcock (1895) from the Orissa and Malabar coasts and then from the Gulf of Kutch, Gujarat (Chhapgar, 1957); Karachi, Pakistan (Banu and Nurul-Huda, 1987); Penang, Malaysia (Tirmizi and Kazmi, 1983); Oman Sea (Fatemi *et al.*, 2012); Point Calimere coastal region (Trivedi and Vachhrajani, 2013); Saurashtra coast, Gujarat (Ravichandran *et al.*, 2010); Chennai coast, Tamil Nadu (Silambarasan *et al.*, 2015); Bangladesh (Chowdhury *et al.*, 2018); and the Karnataka coast (Sivasankar *et al.*, 2019; Vasudevamurthy and Bandekar, 2022).

Conclusion

The *Cryptopodia angulata* from the genus *Cryptopodia* is reported for the first time from Jaigad, Ratnagiri, along the west coast of India. This report of *Cryptopodia angulata* shows its extended distribution along the Indian coasts. The present study provides important documentation of *Cryptopodia angulata* from the west coast of India based on morphological characteristics. A new species record from a new area broadens the species range of distribution and offers valuable information for biodiversity conservation management.

Acknowledgements

I would like to thank the Associate Dean, College of Fisheries, Ratnagiri, for permitting me to pursue my research studies and

providing me with all the necessary facilities at the College of Fisheries, Ratnagiri, for this research work.

Author contributions

Conceptualization: PA; Investigation: PA, AA; Methodology: PA, AA; Formal Analysis: PA; Data Collection: PA, MN; Data Curation: PA, MN; Writing: Original Draft: PA., PN; Writing: Review and Editing: PA, AA, PN; Supervision: AA; Validation: AA.

Conflict of interest

The authors declare that they have no conflict of financial or non-financial interests that could have influenced the outcome or interpretation of the results.

Ethical statement

No ethical approval is required as the study does not include activities that require ethical approval or involve protected organisms/human subjects/ collection of samples/ protected environments.

Funding

No grants were obtained for this research from any funding agencies in the public, commercial, or not-for-profit sectors.

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