

**FIRST DESCRIPTION OF BUCKLER CRAB *CRYPTOPODIA ANGULATA*  
(H. MILNE EDWARDS AND LUCAS 1841) FROM BANGLADESH  
MARINE WATER**

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Two specimens of buckler crab were collected from the southeast coast of Bangladesh in August-September 2017. The crabs were examined morphologically and identified as *Cryptopodia angulata* (H. Milne Edwards and Lucas 1841), which is the only species of the genus *Cryptopodia* belonging to family Parthenopidae, occurring in the marine environment of Bangladesh.

The genus *Cryptopodia* (H. Milne Edwards 1834) is distributed in the Indo-West Pacific, Atlantic and Pacific coasts, and includes 13 species (Chiong and Ng 1998, Ng *et al.* 2008, WoRMS 2018a). These crabs have expanded margins of the carapace that completely hides the walking legs when they are folded (Chiong and Ng 1998), but no congener of *Cryptopodia* has been described from Bangladesh. Incidentally, Banu and Huda (1987) hinted the occurrence of *C. angulata* (H. Milne Edwards and Lucas 1841) at Chittagong coast in the early 1980s by referring to a manuscript in preparation (Banu and Huda 1987). Any published article in the subsequent years could not be traced out during our extensive literature survey; presumably it was never published. Those specimens of *C. angulata* were not even found in the museum of Department of Zoology at the University of Chittagong, where both the authors worked until retirement. But, literature suggests that Zoological Reference Collection (ZRC) of the Lee Kong Chian Natural History Museum (formerly Raffles Museum), National University of Singapore has the collection of Bangladesh specimen of *C. angulata* (Chiong and Ng 1998, Fatemi *et al.* 2012). However, to our knowledge, there is no published literature on the report of *C. angulata* from Bangladesh.

The buckler crabs were collected during cruises of 'RV Meen Sandhani', a survey and research vessel operated by the Department of Fisheries, Government of Bangladesh. Using shrimp trawl net, the crabs were caught from a location 63 km off the Inani coast of Cox's Bazar district lying on 20.83683°N, 91.56342°E at water depths of 67 m (Fig. 1). Environmental variables were not recorded, but past oceanographic records suggest that water temperature and

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and salinity during the sampling time could be 28°C and 23.5 ppt (Mahmood *et al.* 2002). The crabs were photographed, preserved in 10% formalin and transferred to 70% ethyl alcohol (ethanol) for long-term storage. Identification was carried out following the taxonomic key of Chiong and Ng (1998), and Naderloo (2017). The crabs were measured with a Vernier caliper to the nearest 0.1 millimetre (mm). The voucher specimens have been kept as reference material in the museum of Institute of Marine Sciences and Fisheries at the University of Chittagong.

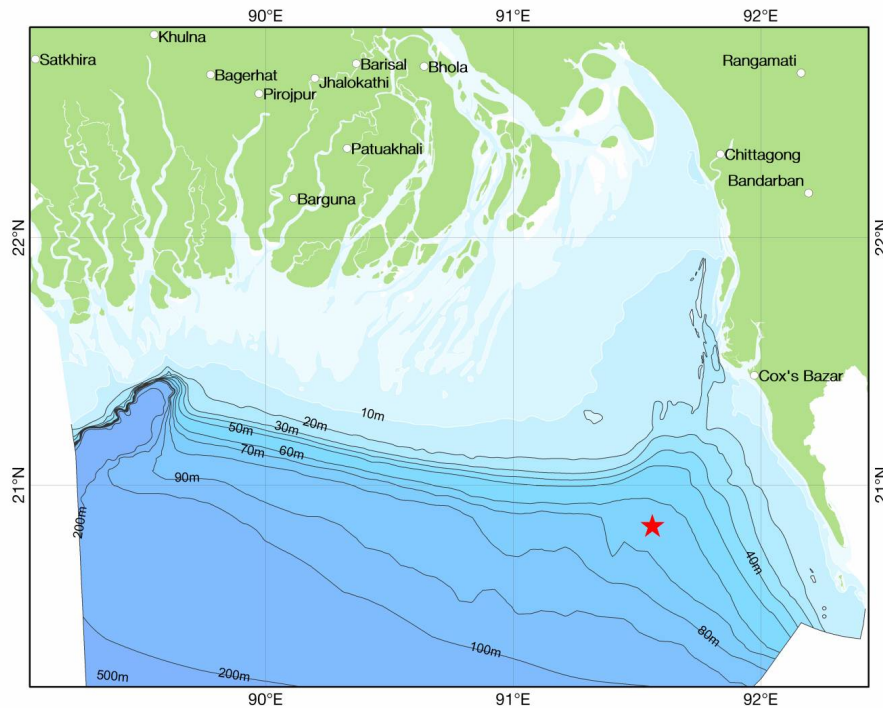


Fig. 1. Map showing the collection point (marked with a star) of *Cryptopodia angulata* in the northern Bay of Bengal, Bangladesh.

*Systematics:*

Order: Decapoda (Latreille 1806)

Family: Parthenopidae (MacLeay 1838)

Genus: *Cryptopodia* (H. Milne Edwards 1834)

Species: *Cryptopodia angulata* (H. Milne Edwards and Lucas 1841) (Fig. 2a, b, c)

*Material examined:* One male 32 by 56 mm (carapace length and width) and one female 30 by 52 mm (Table 1); 20.83683°N, 91.56342°E, the coast of Cox's Bazar at southeast Bangladesh, August-September 2017.

*Description:* The carapace is ~1.75 times broader than long, convex in shape and sharply pentagonal with dentate edges, and carries curved spine at all angles. Two spines are present in the middle of the posterior margin of the carapace. The rostrum is triangular and ending in a sharp point. Lateral margins of carapace completely conceal the abdomen and the legs under it. The dorsal surface of carapace is granulated while ventral surface is smooth. A triangular depression is present in the middle of the carapace and the ridges bounding it are granular. Granules on the ridges begin from the apex of the triangular shape and end at the base of the rostrum on either side (Fig. 2a, b, c). The chelipeds are granular and robust. The palm contains denticles on anterior (four prominent teeth) and posterior margins. The carpus of chelipeds is semiglobular, the merus is flat and harbors wing-like expansions at the distal end. The legs are slender and smooth, and the first pair is considerably longer (Table 1). The surface of the third maxillipeds is smooth. Female abdomen is relatively narrow. Shell color is brown; live specimen is brown or pale pinkish-brown in colour.

**Table 1. The morphometric data of *Cryptopodia angulata***

Character (length/width: mm; weight: g)	<i>Cryptopodia angulata</i>	
	Male (♂)	Female (♀)
Carapace width	56	52
Carapace length	32.0	30.0
Frontal width	7.5	7.3
Abdomen width	13.4	15.4
Abdomen length	6.4	8.6
Sternum width	10.5	10.4
Orbit length	1.8	1.8
Telson length	3.2	4.5
Chela length	23.8	23.6
Dactyl length	10.0	9.0
Merus length	20.0	19.3
1st walking leg length	27.5	21.2
2nd walking leg length	26.6	20.4
3rd walking leg length	24.7	19.5
4th walking leg length	-	18.5
Weight	6.84	5.00
No. of lateral spine on carapace	8	8

The global diversity of brachyuran crabs consists of ~6800 species in 93 families (Ng *et al.* 2008) including 995 species from the Indian waters (Pillai and Thirumily 2008). In Bangladesh, there are 45 species of marine and estuarine

crab belonging to families Calappidae, Carpiliidae, Daldorfiidae (= family Parthenopidae; WoRMS 2018b), Dotillidae, Grapsidae, Leucosiidae, Majidae, Matutidae, Ocypodidae, Portunidae, Sesarmidae, Varunidae and Xanthidae (Johirul 1976, Shafi and Quddus 1982, Ng *et al.* 1987, Chowdhury and Hafizuddin 1991, Siddiqui and Zafar 2002, Ahmed *et al.* 2008, IUCN Bangladesh 2015, Akash and Chowdhury 2017, Akash and Hossain 2017). In particular, the family Parthenopidae consists of only one species, *Daldorfia horrida* (Ahmed *et al.* 2008, IUCN Bangladesh 2015). *C. angulata* of the family Parthenopidae is, therefore, a new addition to the list. The species prefers inhabiting sandy-muddy offshore marine environment (i.e. 63 km off the Cox's Bazar coast; Fig. 1) and appears to be uncommon in Bangladesh marine waters, as reported in other geographical context, i.e. Ravichandran *et al.* (2010). Recently, Silambarasan *et al.* (2015) has recorded the species from the southeast coast of India. The geographical distribution of *C. angulata* includes Australia, India, Indonesia, Malaysia, Maldives, Pakistan, Sri Lanka, Singapore and Thailand (Banu and Huda 1987, Chiong and Ng 1994, Ravichandran *et al.* 2010, Silambarasan *et al.* 2015).

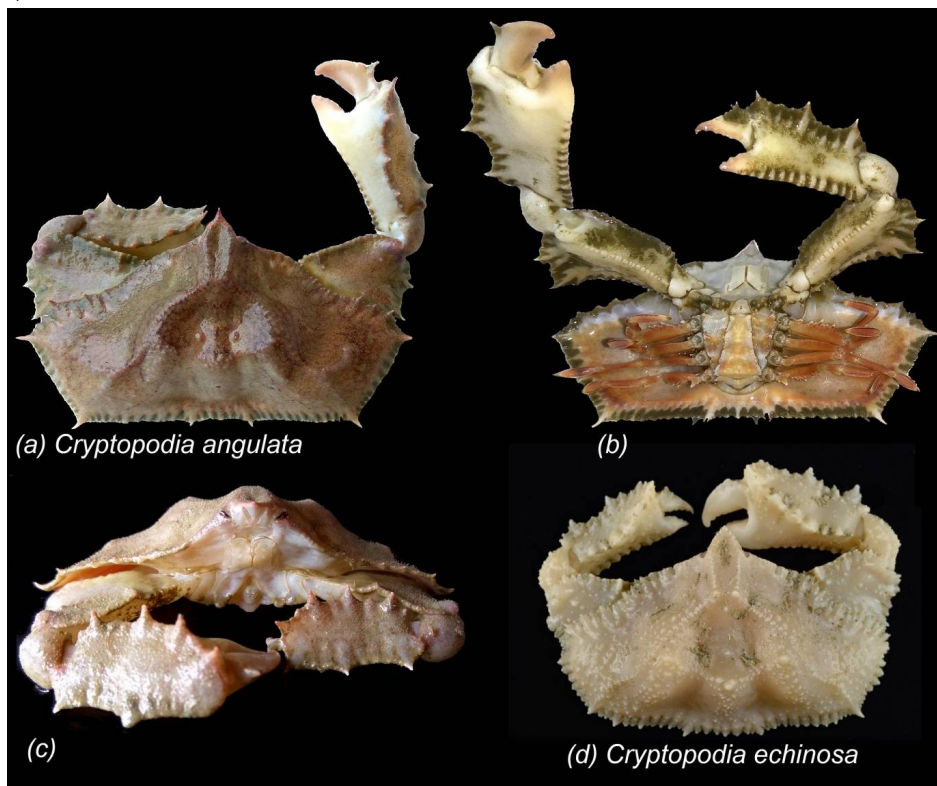


Fig. 2. *Cryptopodia angulata*: (a) Dorsal view, (b) ventral view and (c) anterior view (this study); and (d) *C. echinosa*: dorsal view (source: Naderloo 2017) is given for comparison.

The taxonomy of the buckler crabs of the genus *Cryptopodia* has been discussed in detail by Chiong and Ng (1998). Morphologically *C. angulata* shows a close resemblance to that of its congener *C. echinosa* (Chiong and Ng 1998), although they can be distinguished by certain characters. For example, i) shape of the carapace is more pentagonal in *C. angulata* vs. more triangular in *C. echinosa*, ii) granulation on the dorsal surface is less in *C. angulata* vs. more in *C. echinosa* (Fig. 2a, d), iii) the branchial region of the carapace are prominently more inflated in *C. echinosa* than in *C. angulata*, and iv) the median gastric depression is relatively deeper in *C. echinosa* than in *C. angulata*; as stated by Chiong and Ng (1998), Ravichandran *et al.* (2010), Fatemi *et al.* (2012), Silambarasan *et al.* (2015), and Naderloo (2017). However, *C. echinosa* is not known to occur in the coastal and marine waters of Bangladesh at northern Bay of Bengal.

The global range of distribution of *C. angulata* is not clearly documented. Therefore, knowledge on the distribution of any organism is not only important to understand the natural history but also to build up the baseline data for biodiversity conservation and management, especially for species like *C. angulata* that is observed only on an irregular basis.

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