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Brachyuran Crab Fauna Character Estimated from Marine Water of Bangladesh and Noted New Record (Crustacea: Decapoda) as Distribution

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Abstract

As habitat and distribution, in the study a total of 18 crab species were identified, belonging to 10 families (Calappidae, Epialtidae, Gecarcinidae, Grapsidae, Matutidae, Ocypodidae, Panopeidae, Sesarmidae, Varunidae, and Xanthidae) order Decapoda under subphylum crustacean with relevant distinguish morphological and meristic character and geographical position. We investigated crab species of Bangladesh from December 2013 to October 2014. All species samples were collected by hand picking on a baseline survey in Saint Martin's Island (the only coral island of Bangladesh) and adjacent marine water body of Bay of Bengal, Satkhira area (brackish and freshwater) and mangrove forest area (Sundarban). Among 18 species, 10 crab species from Family Epialtidae (1 species), Gecarcinidae (2 species), Ocypodidae (1 species), Panopeidae (1 species), Sesarmidae (1 species) and Xanthidae (4 species) were newly occurred in the Bay of Bengal, Bangladesh. *Cardisoma armatum* and *Zosymus aeneus* species were larger than other enlisted species.

Keywords

Crab Species, Morphology, Distribution, Coral Island, Bangladesh

1. Introduction

Intertidal area is an important environment that is challenging for living organisms in Saint Martin Island. Marine organisms are affected by humans because

of this area's easy accessibility whereas meeting land and sea [1]. The rocky intertidal area is one of the physically particularly extreme environments around the sea area. Brachyuran crabs belonging to the Order Decapoda are the most diverse animal of crustaceans [2]. In the world, the infra class Brachyura contains about 70 families under Decapoda [3]. In India, a total of 226 species of brachyuran crabs belonging to 130 genera and 39 families reported from different maritime states of the west coast [4]. According to marine species identification portal a total of 1250 species and subspecies of brachyuran crabs recorded from Japan [5]. As aquaculture and traditional food, crab fishery has an important economic value around Asia and in Bangladesh. In the aquatic habitat crustaceans are the most abundant and diverse group. Last decades many researches from different parts of the world focused on taxonomic decapod crustaceans that have enriched crab list and biodiversity [6] [7] [8] but study on crab in marine water very limited research has been done in Bangladesh. This country is a data deficit area in marine crab taxonomic field which leads to limited contribution into the world crab taxonomic and distribution area. Very few researchers have done the taxonomic study on crab [9], freshwater crab in some wetland ecosystem [10], crab in coast and estuary [11] and some marine crab from the Bay of Bengal in Bangladesh [12]. Thus, taxonomic with distribution study has not been widely reported yet from Bay of Bengal marine water. However, the aim of the present investigation is to increase the knowledge on the brachyura fauna family, wise species identification from mainly Bay of Bengal and freshwater of Saint Martin's Island and mangrove forest area in Bangladesh.

2. Materials and Methods

2.1. Study Area, Sites and Time

In the study, we investigated at five sites of Bangladesh. Selected study area is Saint Martin's Island and adjacent water bodies of Bay of Bengal, Sathkhira, and Sundarban for crab survey (**Figure 1**). Live coral sites were selected for a survey in Saint Martin's Island. Site 1: This area was covered by the sandy, rocky, and sandy-rocky beach. Site 2: Freshwater ditch is containing marsh. Site 3: Marine water is a stony area and deep 60 m from the surface. Site 4: Satkhira area (brackish and freshwater), mainly Maloncho river dam of Munshiganj union, Shyamnagar, Site 5: Sundarban (mangrove forest area), mainly Dublarchar, Sundarban, Bangladesh. This study was investigated and collected all samples during December 2013 to October 2014.

2.2. Sample Collection and Preservation Procedure

Crab samples were collected by hand picking from beach and fish landing centers, and some were obtained from fishermen. Several samples were collected from fishing nets in shallow coastal areas and the deep sea. The samples were washed with pure water after collecting, preserved and photo session. Photographs of the crabs were taken by Nikon USA D3300 digital SLR Camera before

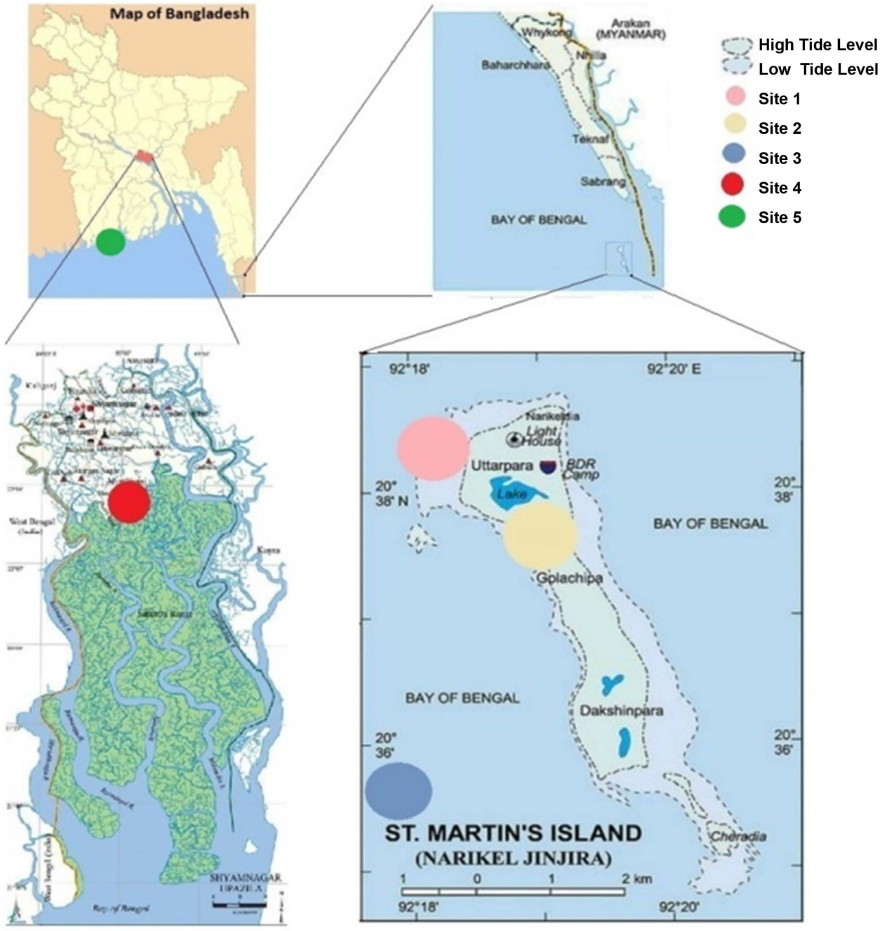

Figure 1. Showed the study sites for brachyuran crab fauna of Bangladesh.

their color changed. Fresh specimens were separated and placed in the ice box for preservation. All specimens were carried out to the fisheries Lab, Department of Zoology, Jagannath University. After observations and measurements, specimens were reserved and preserved with 6% - 10% formalin in the Zoological Museum of Jagannath University, Dhaka.

2.3. Species Measurement, Identification and Analysis

All morphological and meristic characteristics were measured by the digital calipers scale as millimeter (mm) [13]. Species were identified using pictorial, diagnostic characters as well as morphological and meristic characteristics such as color of body part, external features, shape of the carapace, dorsal surface, cheliped and legs, shape of anterolateral margins, antennule and antenna, eye shape, and pereiopod [14]. The following the references for the species identification [4] [9] [15]-[27]. Few species establish local names according to origin. Then, the identified species were tagged with a zoological certain number. To establish present distribution of the crab species is based on field survey, all available reference, and data from various biodiversity databases in addition to SeaLifeBase (https://www.sealifebase.ca), Marine Species Identification Portal (MSIP)

(http://species-identification.org/index.php). All the particular references are mentioned in the above databases. Discrepancies in nomenclature were sorted following the World Register of Marine Species. All measurement data were inputted in the Microsoft excel 2010 data sheet timely and analyzed. Graph figures were plotted by using SigmaPlot 12.0.

3. Results and Discussion

In the study, a total of 18 crab species recorded belongs to 10 families (Calappidae, Epialtidae, Gecarcinidae, Grapsidae, Matutidae, Ocypodidae, Panopeidae, Sesarmidae, Varunidae, and Xanthidae) order Decapoda under subphylum crustacean. As a result of distribution, nine crab species were recent newly added to the crab list of Bangladesh. Major Morphometric and meristic key of crab species were estimated as millimeter scales that are represented in **Table 1** and **Table 2**, and **Figure 2** and **Figure 3** for species identification and calculation.

Table 1. Estimated weight and morphometric characters of crab species that recorded from marine water of Bangladesh.

Family	Scientific Name	Local Name	Sites	W/Cl/Cb/Al/Anl/esl/ed/pbl/fml	Left Cheliped (mm)	Right Cheliped (mm)
					A/B/C/D/E/F	A/B/C/D/E/F
Calappidae	*Calappa lophos*	Banksho Kankra	1	25/50/70/4/6/3/3/0/0	4/6/19/14/22/12	4/6/19/14/22/12
Epialtidae	*Criocarcinus superciliosus*	Makorsa Kankra	3	15.87/56/38/8/14/5/1/6/7	6/11/17/10/20/7	6/11/17/10/20/7
Gecarcinidae	*Cardisoma armatum*	Baki Kankra	2	174/60/80/-/-/8/4/25/19	9/8/31/2/64/35	12/15/28/22/55/32
Gecarcinidae	*Cardisoma carnifex*	Ragi Kankra	2	73.77/44/57/6/4/8/4/20/13	9/14/22/18/67/28	10/15/24/20/73/30
Grapsidae	*Grapsus albolineatus*	Chironi Kankra	1	1.4/14/16/3/-/3/2/10/4	1/2/5/3/6/4	1/2/5/3/6/4
Matutidae	*Matuta lunaris*	Lunari Kankra	1	6.2/26/40/8/-/3/0.8/6/6	1.5/4/8/8/18/8	1.5/4/8/8/18/8
Ocypodidae	*Ocypode pallidula*	BGB Kankra	1	3.9/19/20/-/-/3/2/12/3	2/4/8/5/9/6	2/5/9/8/15/9
Ocypodidae	*Ocypode macrocera*	Lal Kankra	1	16.18/28/26/-/-/6/4/19/4	3/11/18/14/28/16	3/11/18/14/28/16
Ocypodidae	*Uca rosea*	Lalpa Kankra	4	1.02/10/18/-/-/4/2/7/2	1/3/8/5/20/10	1/2/6/3/5/4
Panopeidae	*Panopeus lacustris*	Badami Kankra	1	2.52/16/24/-/-/2/2/4/9	4/5/7/4/14/7	4/5/7/4/14/7
Sesarmidae	*Pseudosesarma bocourti*	Gombuj Kankra	2	20.8/28/31/2/5/5/3/13/17	8/12/5/8/36/16	8/12/5/8/36/16
Sesarmidae	*Episesarma sp*	Bang kankra	2	2.56/18/18/-/-/3/2/8/8	1/4/6/3/8/5	1/4/6/3/8/5
Varunidae	*Varuna litterata*	Gulli Kankra, Chiti Kankra	2	12/33/32/10/9/3/2/18/-	5/5/10/8/18/10	5/5/10/8/18/10
Xanthidae	*Atergatis floridus*	Mojaik kankra	3	67.9/45/62/9/7/3/3/16/11	11/11/16/21/35/24	11/11/16/21/35/24
Xanthidae	*Atergatis integerrimus*	Mishuk Kakra	3	12/29/40/5/3/2/1/8/10	3/4/10/11/16/9	3/4/10/11/16/9
Xanthidae	*Lophozozymus pictor*	Sada fota shila kankra	3	150/56/89/10/7/2/2/20/18	11/15/24/28/45/27	11/15/24/28/45/27
Xanthidae	*Xantho poressa*	Sabuj Kankra	1	59/11/16/-/-/2/2/3/5	1/3/4/6/10/5	1/3/4/6/10/5
Xanthidae	*Zosymus aeneus*	Bishakto Kankra	3	181.88/68/88/13/6/3/2/18/18	15/18/37/36/66/35	18/16/22/21/44/24

Note: here, W = weight, Cl = carapace length, Cb = carapace breadth, Al = antennule length, Anl = antenna length, esl = eye stalk length, ed = eye diameter, pbl = posterior border length, fml = frontal margin length, A = Coxa, B = Basi- ischium, C = Merus, D = Carpus, E = Propodus, F = Dactylus. (mm scale).

Table 2. Estimated meristic characters of crab species that recorded from marine water of Bangladesh.

Scientific Name	Ans/Pob/Fs/Ife/Nt	Leg	Cheliped	Periopod			
				2nd	3rd	4th	5th
		m/C/D	Bi/m/C/D/P	Bi/m/C/D/P	Bi/m/C/D/P	Bi/m/C/D/P	Bi/m/C/D/P
Calappa lophos	xiii pairs/-/-/-/-						
Criocarcinus superciliosus	v pairs/i spine/ii/Ii/-	i/i/-	-/ii-/-/-				
Cardisoma armatum	i pair/-/-/-/xv + xiv		-/ii/-/-/ii	0/0/0/xviii/iv 0/0/0/xviii/iv	0/0/0/xviii/ii 0/0/0/xviii/ii	0/0/0/xiv/ii 0/0/0/xiv/ii	0/0/0/xx/0 0/0/0/xx/0
Cardisoma carnifex	i pair/-/-/-/xvii + xviii		-/xxxvii/i/-/-				
Grapsus albolineatus	ii pairs/-/-/-/viii + vii	Iv/i/i	-/v/i/-/ix	0/i/0/xiii	0/i/0/xii/0	0/i/0/xv/0	0/i/0/xiii/0
Matuta lunaris	iv pairs/-/Ii/-/vii + vii		-/Vii/i/-/iv	v spines	v spines	v spines	
Ocypode pallidula	-/-/-/-/vi + vi	-/i/-	-/Vii/i/Xiv/-				
Ocypode macrocera	Many/-/-/Many/vi + vi		-/xx/vii/x/xxv	few	few	viii spines	
Uca rosea	i pair/-/-/-/xiv + xiv						
Panopeus lacustris	iii pairs/-/-/-/iii + iii						
Pseudosesarma bocourti	i pairs/-/-/-/ix + x		Xxxi/ii/vi/-/-	0/i/0/0/0	0/i/0/0/0	0/i/0/0/0	0/i/0/0/0
Episesarma sp	ii pair/-/-/-/iii + iii		-/i/ii/-/-	0/i/0/0/0	0/i/0/0/0	0/i/0/0/0	0/i/0/0/0
Varuna litterata	iii pairs/-/-/-/vii + viii	i/i/-	-/ii/ii/-/-				
Atergatis floridus	-/-/-/-/v + vii						
Atergatis integerrimus	-/-/-/-/iv + iii		-/-/i/-/-				
Lophozozymus pictor	iii pairs/-/-/-/viii + vii		-/-/Ii/-/-				
Xantho poressa	iii pairs/-/-/-/0 + ii						
Zosymus aeneus	iv pairs/-/Iv/i spine/v + vi	v/-/-	-/v/i/-/-				

Notes: Ans = anterolateral spine; Pob = posterior border; Fs = frontal spine; Ife = in front of eye; Nt = number of teeth; m = merus ; C = carpus; D = dactylus; Bi = basi-ischium; p = propodus.

3.1. Estimated Weight and Morphometric Character

Among all crab species maximum wet weight was 181.88 g for the crab species *Zosymus aeneus*. Carapace length and breadth measured as a major identification key that observed maximum length 68 mm and breadth 88 mm in *Z. aeneus*. Posterior border length: 18 mm; frontal margin length: 18 mm; antennule length: 13 mm; antenna length: 6 mm; eye stalk length: 3 mm; eye diameter: 2 mm (Table 1).

3.2. Estimated Cheliped and Pereiopod

Each crab species has two (left and right) cheliped (Table 1). Pereiopod is a key character of the leg of the crab species and it includes six parts that are represented in Figure 2 and Figure 3.

Coxa: Its small segment of the leg that connects to the body. This is the first part of cheliped and pereiopod from the body of crab species. In cheliped, maximum size of coxa was 15 mm (left) and 18 mm (right) recorded whereas in pereiopod coxa average size was 9.25 ± 2.98 mm for *Z. aeneus*.

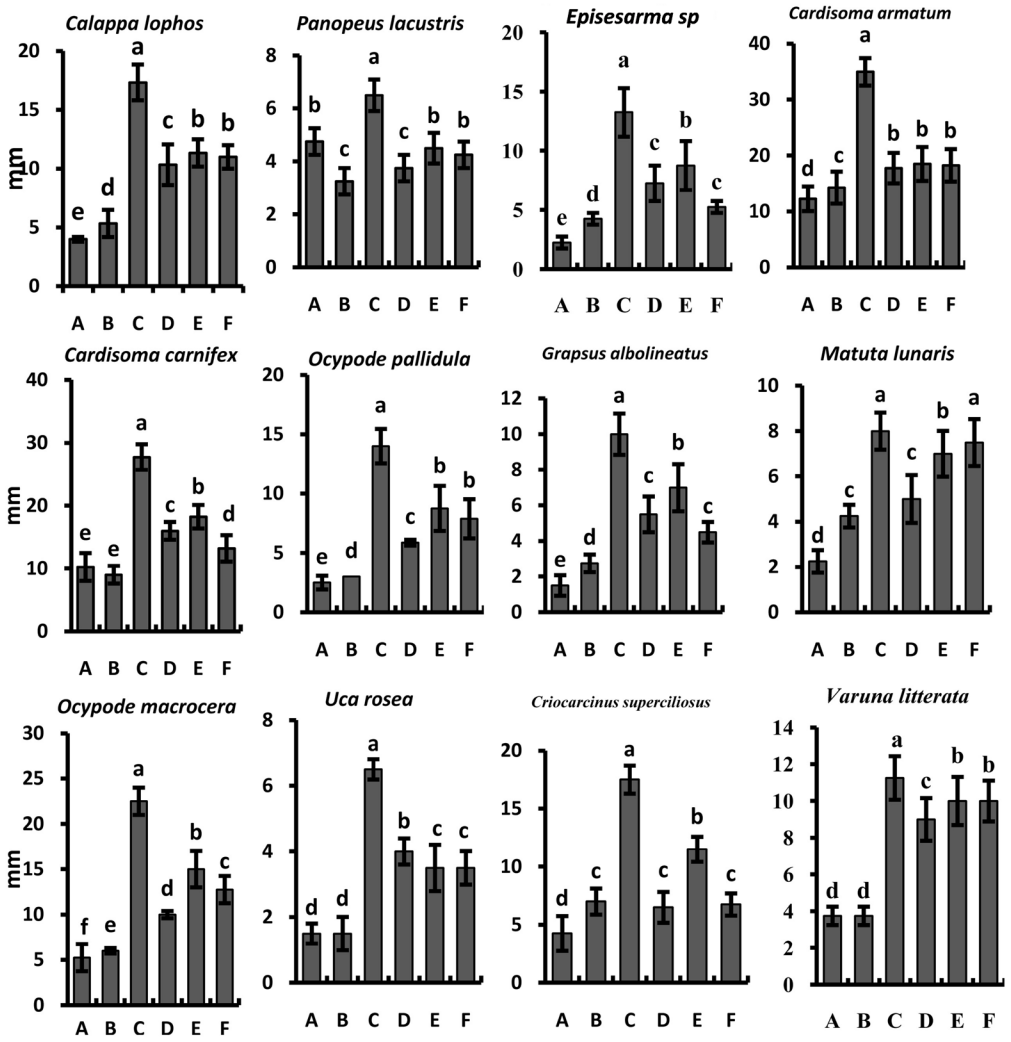

Figure 2. Estimated average morphological character of different part of Pereiopod of crab species that recorded from marine water of Bangladesh (here, A = Coxa, B = Basi - ischium, C = Merus, D = Carpus, E = Propodus, F = Dactylus) (mm scale). (Different small letter indicated significantly different between body parts at $P < 0.05$).

Basi-ischium: Its second part that situate between coxa and merus in cheliped and pereiopod of crab species. In cheliped, large size of basi-ischium was 18 mm (left) and 16 mm (right) whereas in pereiopod average size was 14.25 ± 2.87 mm present in *C. armatum.*

Merus: Its third part that situate between basi-ischium and carpus in cheliped and pereiopod of crab species. In cheliped, maximum size of merus is 37 mm (left) for *Z. aeneus* and 28 mm (right) for *C. armatum* whereas in pereiopod, maximum average size was 35.00 ± 2.44 mm recorded from *C. armatum*.

Carpus: As the 4th part of cheliped and pereiopod, its position between merus and propodus in cheliped and pereiopod of crab species. In cheliped, maximum size was 36 mm (left) for *Z. aeneus* and 22 mm (right) for *C. armatum* but in pereiopod average maximum size of carpus 20.25 ± 0.50 mm recorded from *Lophozozymus pictor*.

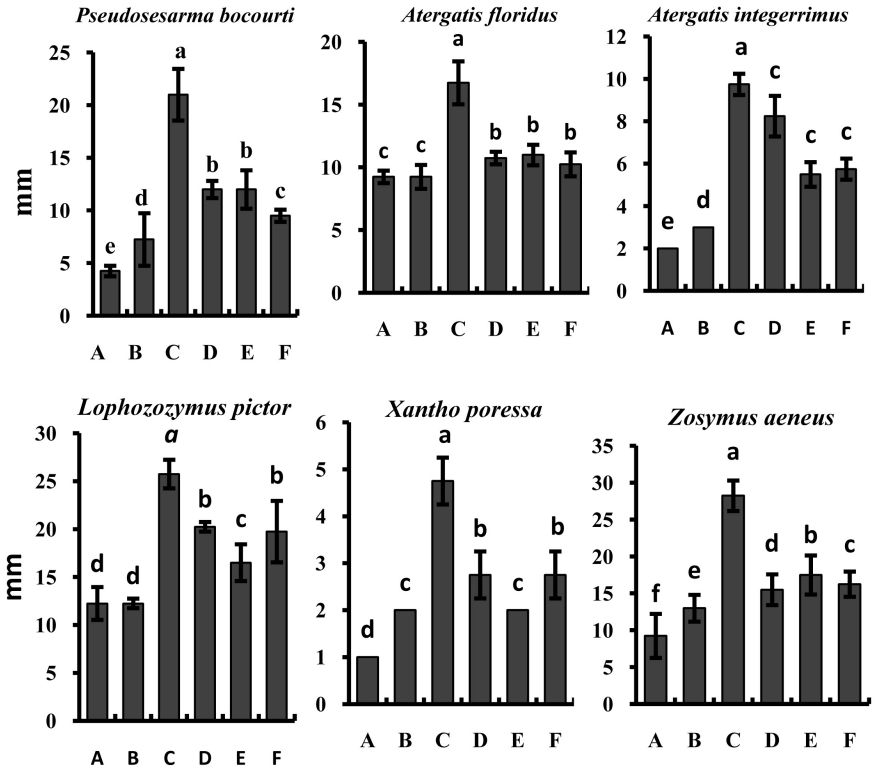

Figure 3. Estimated average morphological character of different part of Pereiopod of crab species that recorded from marine water of Bangladesh (here, A = Coxa, B = Basi - ischium, C = Merus, D = Carpus, E = Propodus, F = Dactylus) (mm scale). (Different small letter indicated significantly different between body parts at $P < 0.05$).

Propodus: Its 5th part of cheliped and pereiopod that position between carpus and dactylus in cheliped and pereiopod of crab species. In cheliped, height size of propodus was 67 mm (left) and 73 mm (right) for *C. carnifex* whereas average highest size of propodus was 18.50 ± 3.03 mm in pereiopod of *C. armatum*.

Dactylus: Its last part of cheliped and pereiopod that join with only propodus in cheliped and pereiopod of crab species. In cheliped, maximum size of dactylus was 35 mm (left) and 32 mm (right) for *C. armatum* whereas average maximum size was 19.75 ± 3.20 mm in pereiopod of *Lophozozymus pictor*.

3.3. Estimated Meristic Character

We measured the meristic characters of 18 crab species in Table 2. Large species *C. armatum*, counted anterolateral spine: i pair; number of teeth: xv + xiv; merus of cheliped contains i spine in dorsa side and i spine in the ventral side; each propodus of the last four periopods contains ii spines in the dorsal side; dactylus of the 2nd periopod contains xviii spines in the dorsal side and iv spines in the ventral side; dactylus of 3rd periopod contains xviii spines in the dorsal side and ii spines in the ventral side; dactylus of the 4th periopod contains xiv spines in the dorsal side and iv spines in the ventral side; dactylus of 5th periopod contains xx spines in the dorsal side.

3.4. Species Remark with Sex and Color

In the study crab species were remark with sex and color through observation. Species *Calappa lophos* (Herbst, 1782) is male [♂]. (Figure 4(a)), ground yellowish beige yellow; purple spots on posterior carapace; transverse red stripes on postero lateral part. Species *Criocarcinus superciliosus* (Linnaeus, 1758) is unknown (Figure 4(b)), dorsal and ventral surface of carapace ash; cheliped ash and brown in color, but other legs are ash color only. Species *Cardisoma armatum* (Herklots, 1851) is male [♂] (Figure 4(c)), dorsal surface of carapace is chocolate and ventral surface is reddish-yellow in color. coxa is yellow in color in the dorsal side and brown in the ventral side; basi-ischium is yellow color in the dorsal and brown in the ventral side; merus is violet color in the dorsal and yellow in the ventral side; carpus is violet color in the dorsal and yellow in the ventral side; propodus and dactylus are yellowish in the dorsal side and in the ventral side of cheliped; coxa of last four periopods are reddish color in the dorsal and ventral side; basi-ischium, merus, carpus and propodus of last four periopods are chocolate in color in both dorsal and ventral side; dactylus of last four periopods are reddish in both dorsal and ventral sides.

Species *Cardisoma carnifex* (Herbst, 1796) is female [♀] (Figure 4(d)), dorsal surface of carapace blackish-grey and ventral surface yellowish-white in color; coxa is yellowish-white in the dorsal side and yellowish-white in the ventral side.

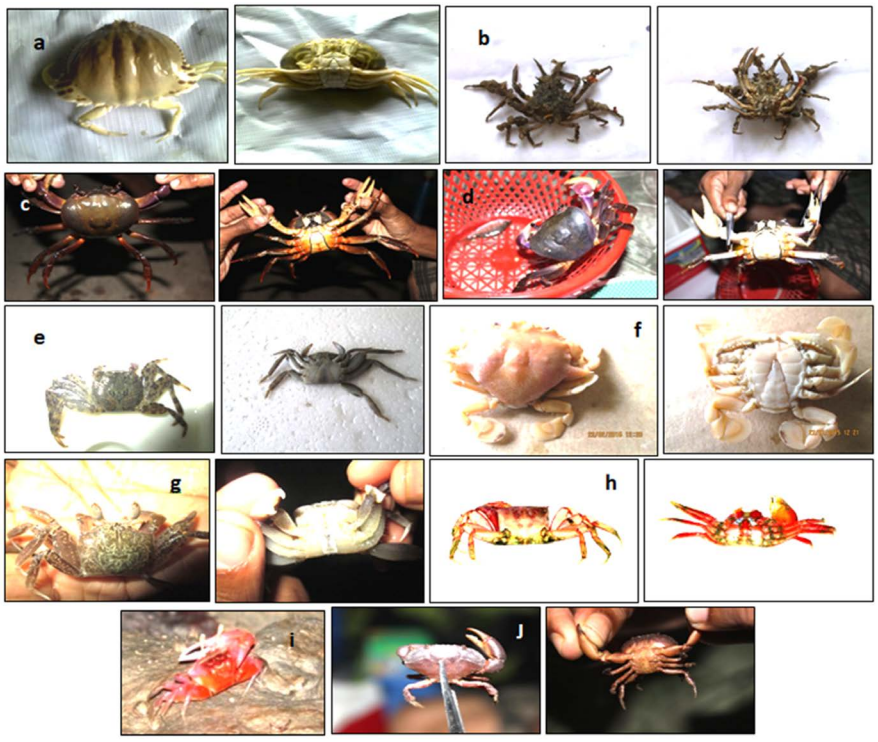

Figure 4. (a) *Calappa lophos*, (b) *Criocarcinus superciliosus* (c) *Cardisoma armatum*, (d) *Cardisoma carnifex*, (e) *Grapsus albolineatus*, (f) *Matuta lunaris*, (g) *Ocypode pallidula*, (h) *Ocypode macrocera*, (i) *Uca rosea*, (J) *Panopeus lacustris*, dorsal (left) and ventral (right) views.

Basi-ischium is yellowish-white color in the dorsal side and pale white in the ventral side, merus is purple color in the dorsal side and whitish in the ventral side, carpus is purple color in the dorsal side and whitish in the ventral side, propodus is greenish-yellow color in the dorsal side and yellow in the ventral side, dactylus is yellow color in the dorsal side and yellow in the ventral side of cheliped; coxa is yellowish color in the dorsal side and yellowish in the ventral side. Species *Grapsus albolineatus* (Lamarck, 1818) is female [♀] (**Figure 4(e)**), dorsal surface of carapace yellow and black; ventral surface off-white in color; all legs are brown black and off-white. Species *Matuta lunaris* (Forskal, 1775) is male [♂] (**Figure 4(f)**), dorsal surface of the carapace is gray and yellow; and ventral surface is whitish; legs are cream in color. Species *Ocypode pallidula* (Jacquinot, 1846) (Linnaeus, 1758) is male [♂] (**Figure 4(g)**), dorsal surface of carapace ash and ventral surface off-white in color; legs are deep grayish and light grayish. Species *Ocypode macrocera* (Milne Edwards, 1852) is Male [♂] (**Figure 4(h)**), dorsal and ventral surfaces of carapace red in color. Species *Uca rosea* (Tweedie, 1937) is unknown (**Figure 4(i)**), dorsal surface of carapace red and ventral surface grayish; cheliped is combined of reddish and brownish, other legs are deep grayish and reddish. Species *Panopeus lacustris* (Desbonne, 1867) is Male [♂] (**Figure 4(J)**), dorsal surface of carapace coffee color and ventral surface brownish; cheliped coffee color, other legs are coffee and ash in color. Species *Pseudosesarma bocourti* (A. Milne-Edwards, 1869) is female [♀] (**Figure 5(a)**), the dorsal surface of carapace is chocolate, dark, and yellowish. The ventral surface is black and yellowish in color; coxa and basi-ischium is reddish color in the dorsal side and yellowish in the ventral side, but merus is creamy in the ventral side, and carpus is whitish in the ventral side. Species *Episesarma sp* (Latreille, 1803) is Male [♂] (**Figure 5(b)**), the dorsal surface of carapace is deep grey; the ventral surface is whitish in color. Coxa, basi-ischium, merus, and carpus are grayish color in the dorsal side and yellowish in the ventral side. Propodus is reddish color in the dorsal side and off-white in the ventral side. Dactylus is white in color in the dorsal side, and white in the ventral side of the cheliped. The last four periopods are grayish in color in the dorsal side and yellowish in color in the ventral side.

Species *Varuna litterata* (Fabricius, 1798) is unknown (**Figure 5(c)**), the dorsal surface of the carapace is grayish, and the ventral surface is whitish. The cheliped is grayish and orange-grayish. The other legs are deep grayish and light grayish. Species *Atergatis floridus* (Linnaeus, 1767) is Male [♂] (**Figure 5(d)**), the dorsal surface of carapace is chocolate in color, and the ventral surface is yellowish. The cheliped is a combination of yellow, off-white, and black. The other legs are a combination of yellow and chocolate colors. Species *Atergatis integerrimus* (Lamarck, 1818) is Male [♂] (**Figure 5(e)**), the dorsal and ventral surfaces of the carapace are brown. The dactylus and propodus tip of the cheliped are black. The other legs are brown in color. Species *Lophozozymus pictor* (Fabricius, 1798) is Female [♀] (**Figure 5(f)**), the dorsal surface of carapace is gray spotted red, and the ventral surface is also gray spotted red. The cheliped is

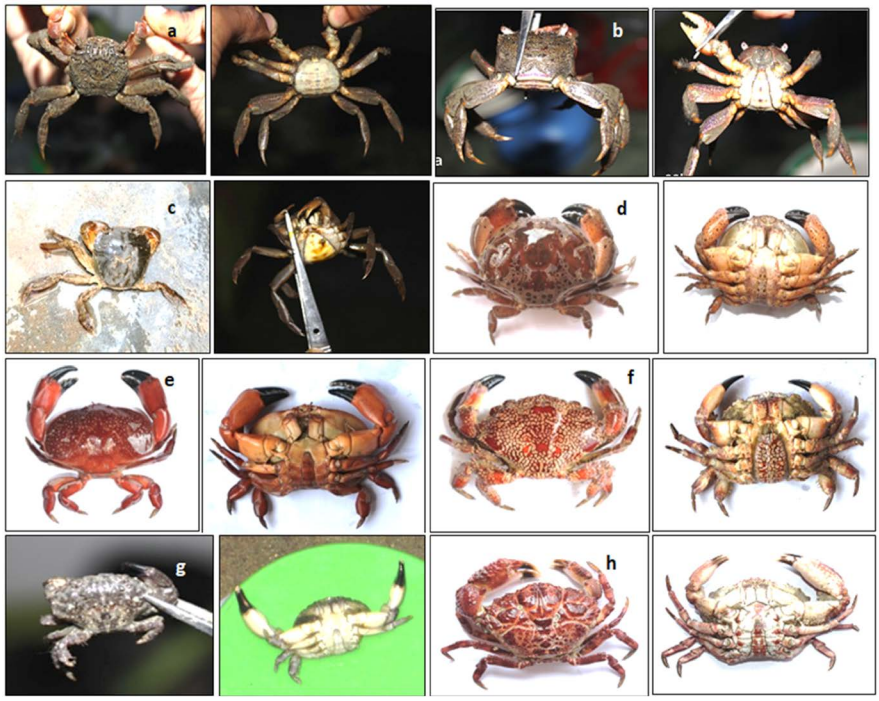

Figure 5. (a) *Pseudosesarma bocourti*, (b) *Episesarma sp.*, (c) *Varuna litterata*, (d) *Atergatis floridus*, (e) *Atergatis integerrimus*, (f) *Lophozozymus pictor*, (g) *Xantho poressa*, (h) *Zosymus aeneus.* Dorsal (left), and Ventral (right) views.

a combination of white, red-white, chocolate, off-white, red-black, and black. The other legs are a combination of red-white, white, black-red, chocolate, and black. Species *Xantho poressa* (Olivi, 1792) is Male [♂] (**Figure 5(g)**), the dorsal surface of carapace is grayish. The ventral surface is whitish. The cheliped is off-white and black, other legs are ash and off-white in color. Species *Zosymus aeneus* (Linnaeus, 1758) is Male [♂] (**Figure 5(h)**), dorsal surface of carapace is reddish, and the ventral surface is off-white. The legs are off-white and reddish in color.

3.5. Habitat Observation and Geographical Position

In this study, Calappidae, Epialtidae, Gecarcinidae, Grapsidae, Matutidae, Ocypodidae, Panopeidae, Sesarmidae, Varunidae, and Xanthidae families included 18 species whereas ten species (*C. superciliosus*, *C. armatum*, *C. carnifex*, *O. pallidula*, *P. lacustris*, *P. bocourti*, *A. floridus*, *L. pictor*, *X. poressa*, *Z. aeneus*) newly found in this south east region as distribution and habitat. Seven species (*C. lophos*, *G. albolineatus*, *M. lunaris*, *O. pallidula*, *O. macrocera*, *P. lacustris*, *X. poressa*) were recorded from marine water habitat at site 1 (20˚39'N and 92˚18'E); Five Species (*C. armatum*, *C. carnifex*, *P. bocourti*, *Episesarma sp.*, *V. litterata*) were recorded from freshwater ditch is containing marsh habitat at site 2 (20˚38'N and 92˚19'E) and Five species were (*C. superciliosus*, *A. floridus*, *A. integerrimus*, *L. pictor*, *Z. aeneus*) recorded from marine water habitat at site 3 (20˚36'N and 92˚18'E) in Saint Martin's Island. Species *Uca rosea* recorded from

brackishand freshwater habitat at site 4 (22.3306˚N and 89.1028˚E) in Satkhira area, Bangladesh.

In the world, Bangladesh is the climatically vulnerable country for fisheries [28]. Researcher, twenty eight species reported from marine and freshwater [9] and most of the species used for human consumption [25] but still incomplete study with distinguishing morphometric and meristic character that has impact in the environment for long term sustain with other species. In crab culture have emerged employment and income opportunities [29] [30], but species introducer as distribution and character evolution is very few study happened in South East Asia. Species *Criocarcinus superciliosus* (Linnaeus, 1758) from china seas [31], *Cardisoma armatum* from Cape Verde and Senegal to Angola [32], *Cardisoma carnifex* (Herbst, 1796) from Kenyan mangrove swamp [33], *Ocypode pallidula* from Leigh Marine Reserve, New Zealand [34] but as distribution first time we find in marine water of Saint Martin's Island. *Panopeus lacustris* has been introduced in Hawaii in the 1950s [35], Indian River Lagoon [36], Brazil [37] but as distribution for the first time we found in marine water of Saint Martin's Island. Species *Pseudosesarma bocourti* under Sesarmidae family recorded from Japan [38], Kagoshima [39]; Thailand - Bangkok [40] but first time we found in marine water of Saint Martin's Island that is very extensive and important for ecology and environment to develop history and sustainable cultural in the coastal region.

Xanthidae family Species *Atergatis floridus* recorded from Sri Lanka [41], Hainan Island and Paracel Islands in China [42], Indian Pacific Ocean [43], *Lophozozymus pictor* fromnorth-eastern Taiwan, Thailand [44] Hainan Island in Singapore [41], China [42]; *Xantho poressa* reported from Bulgaria and Turkey coasts. [45], and *Zosymus aeneus* reported from Okinawa in Japan [46], Hainan Island and Paracel Islands in China [42], Durban in South Africa [47] but as distribution first time introduced with distinguishing character in this South East Asia region of Bangladesh. Habitat modification and introduction of crab species combined to cause loss of biodiversity occurred through anthropogenic activities. However, due to habitat loss, climatic conditions, poor transportation, limitation and lack of funds and resources many species unidentified in marine and freshwater of Bangladesh. Lack of studies on crustacean species identity and importance in South East Asia these results could be significant for next generation researchers around the world with Bangladesh. Therefore, biological investigation and an improved understanding of crab species by local people, fishermen regarding the importance of marine ecosystem of crabs in the South East Asia.

4. Conclusion

As a crucial investigation, a total of 18 crab species were recorded with morphometric and meristic characters. This original paper will be helpful for the further creation of suitable research plans to conserve marine crab populations,

proper identification and investigation to enrich the brachyuran fauna of Bangladesh. All crab species have significant values in fishery, tourism, local economy, human health, socio-economic activities and biodiversity.

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Conflicts of Interest

The authors declare no conflict of interests for this research and paper.

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