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OBSERVATION AND DESCRIPTION OF TWO NEW SPECIES OF CRAB *DEMANIA INDIANA* SP. NOV. AND *D. ALCOCKI* SP. NOV. FROM EAST COAST OF INDIA

By

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INTRODUCTION

The genus *Xantho* (*Lophoxanthus*) as cited by Alcock in 1898, is now known as *Demania* Laurie 1906. The status of two new varieties of Alcock are now raised to species level as *D. baccalipes* (Alc.) and *D. cultripes* (Alc.) by Guinot (1979 : 59). Alcock's eight specimens of three species of *Demania* were arranged with the named general collection of Z.S.I. and did not bear any specific labels for the type catagory and two specimens were wrongly named and misidentified. But I could recognise both the types from the localities, measurements and descriptions given by Alcock.

Present literature reveals that both the misidentified and wrongly labelled Indian specimens of *X* (*L*) *soaberrimus* designated and described by Alcock belong to different species, both of them are new species. One of them is a very large crab apparently almost similar to *D. toxica* Garth 1971, a poisonous crab of Philippine Island, but differs from the *D. toxica* in several significant points.

Demania Laurie

Demania Laurie 1906 : 396 ; Guinot 1967 : 704 ; 1969 : 234 ; 1979 : 57 : 1981 : 1118 ; Takeda and Miyake 1969 ; 456 ; Garth 1971 : 179 ; Sakai 1976 : 420.

Lophoxanthus M. Edwards 1861 : 256 ; Alcock 1898 : 116 ; Sakai 1934 : 309 ; Buitendijk 1950 : 77.

Xantho Walker 1887 : 109 ; Rathbun 1910 : 350 ; Odhner 1925 : 79 ; Sakai 1936 : 149 ; 1939-461.

Carapace not very broad, somewhat pentagonal in shape, convex antero posteriorly and less so from side to side. Regions and subregions of carapace well marked, studded with convex lobules, granules etc. Upper surfaces of these lobules are smooth, rounded or conical or scaly. Anterolateral sides either thick, blunt or thin, continued below the eye towards the anterolateral angle of buccal cavern and divided into four, shallow lobes or conical teeth excluding the outer orbital

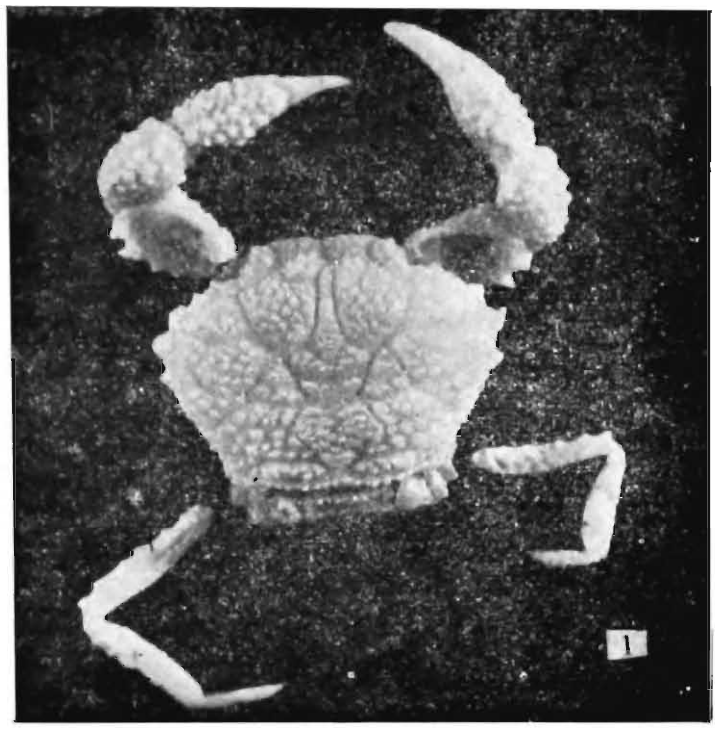

Fig. 1. *D. alcocki* sp. nov.

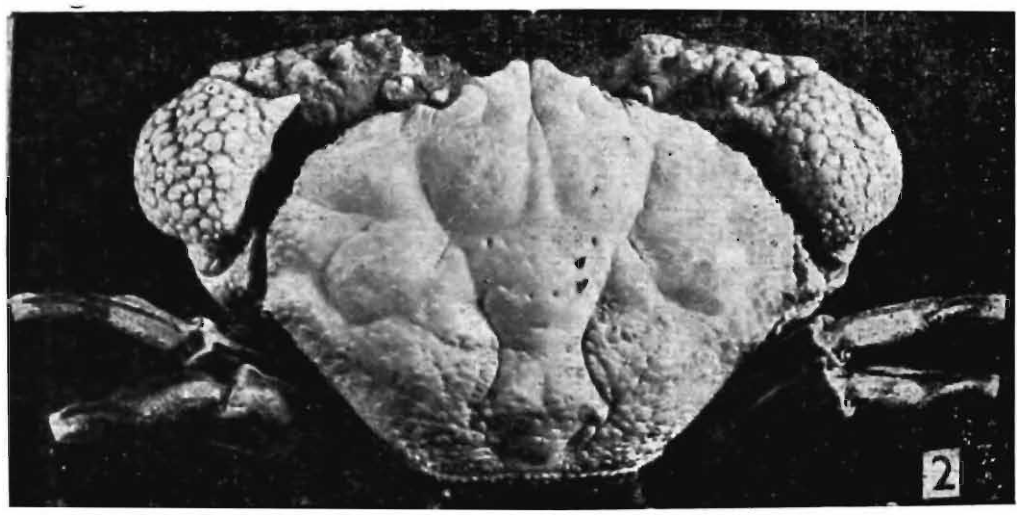

Fig. 2. *D. idiana* sp. nov.

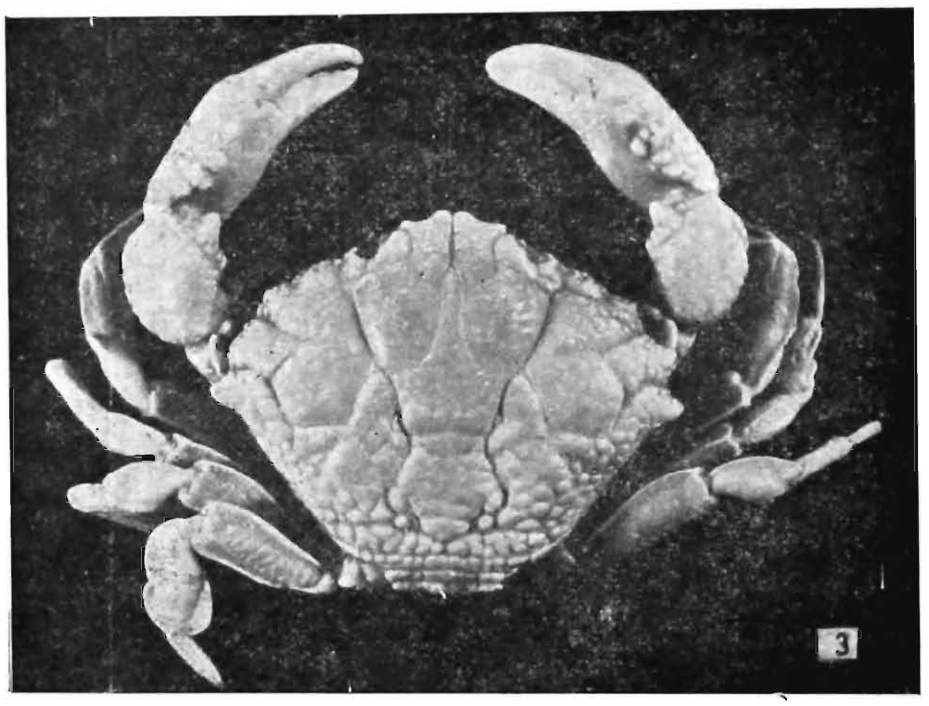

Fig. 3. *D. cultripes* (Alcock)

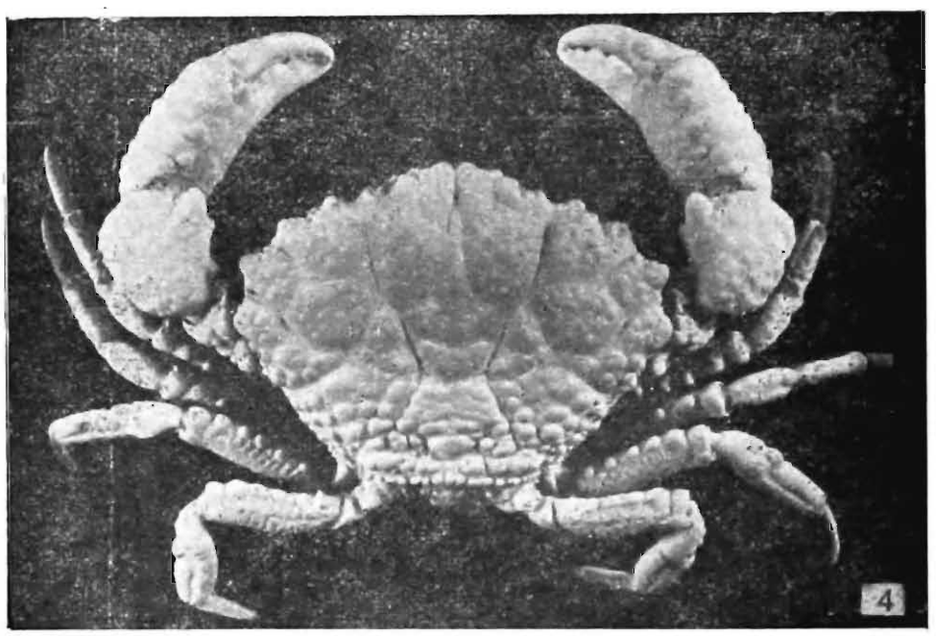

Fig. 4. *D. baccalipes* (Alcock)

angle. Posterolateral sides concave or straightly convergent. Front prominent, in some cases projected beyond the orbit. Orbital edge rough, with three sutures near the outer angle. Antennules obliquely fold. Efferent branchial channel present upto the side of buccal cavern. Chelipeds massive, equal or almost so, fingers bluntly pointed, upper edge of arm of chelae crested, toothed upper edge of palm toothed bluntly or pointedly. Leg joints broad, compressed or rounded, narrow. Upper edges of merus carpus and propodus of legs either crested or crenate, or entire and ends bluntly or in a spine. Lower edges of merus and propodus crested entirely. Dactylus rounded and with an upper and a lower band of valvety, short hairs. Male abdomen five jointed.

Remarks : The genus *Demania* comprises 12 world record of known species so far and three species viz. *D. toxica* Garth, *D. alcalai* Garth, *D. reynaudii* (M. Edw.) are found to be highly toxic to man and domestic animals. The poisonous nature of the other Indian species has yet to be ascertained.

Distribution : Tropical Indo Pacific, ranges from Bay of Bengal, E. Coast of India, Sri Lanka to Philippines, northern Queensland and Japan and said to inhabit coral reefs, rocky beaches and bottoms ; cervices in rocks or coral reefs at a depth, range from 0-125 m.

Key to the species from India and Sri Lanka

1.	Frontal lamina rather broad and horizontal.···	*alcocki*
2.	Frontal lamina rather narrow, medially produced, free edge of lamina concave. ···	··· 3
3.	Upper edge of merii of walking legs created. ···	··· 4
	Upper edge of merii of walking legs beaded. ···	*baccalipes*
4.	Last two antero-lateral teeth prominent, triangular. ···	*cultripes*
	Last two antero-lateral teeth low, shallow lobes. ···	··· 5
5.	Regions of carapace well demarcated, tubercular all over. ···	*splendida*
	Regions of carapace well demarcated, faintly scabrous only posteriorly. . .	*indiana*

Demania alcocki sp. nov.

(Pl. I, fig. 1)

Xantho (*Lophoxanthus*) *scaberrimus* Alcock 1898 : 116.

Holotype Male, Z.S.I. Regd. no. 317/7 ; collected from Orissa coast, 11 fms. on 15.1.1889. Width—7 mm, Length—6 mm.

Diagnostic characters : Carapace somewhat hexagonal in shape, not much broader than long, it is very convex antero-posteriorly at the region of last two anterolateral teeth and not so from side to side. Entire carapace divided by smooth, deep, broad grooves into regional lobules. The entire surface of carapace, its under surface and chelipeds are covered with smooth granules, these granules are neither uniform in shape and size nor confluent in nature. The granules on the male abdominal or pareopods are small and pearly in nature. Front horizontal, rather broad, about one third of the greatest width of carapace, bilaminar, not produced beyond the orbital edge. Frontal lamina obliquely deflexed downwards, free edge granular, outer angle distinct but not notched off. Anterolateral sides adorned with four, conical teeth, other than the outer orbital angle. First tooth low, small, second and fourth teeth same in size and the third tooth most prominent, directed forward, and the carapace is widest at the level of third tooth. Posterolateral sides beaded, convergent. Posterior margin of carapace is beaded and measures slightly more than half of the greatest width of carapace. Orbits rather larger than the other known Indian species, margins rough, eye stalks thick, eyes large and are almost exposed entirely. Antennules fold transversely.

Chelipeds equal in male, upper edge of arm dentate, the two subterminal dents most prominent spinelike. Outer and lower sides of arm, wrist and all the surfaces of palm thickly covered with sharp, prominent, granules. On lower outer sides of palm these granules are arranged in longitudinal rows. Inner corner of wrist bidentate ; fingers longitudinally grooved and pointed at tips. The specimen is accompanied with a pair of detached legs, the joints of these legs are long, narrow and compressed. Uper edges of merus armed with 5-6 beads, of carpus with four and of propodus with 5-6 granules ; the lower edges of the same joints are also adorned with few sharp, granules near their proximal ends. Dactylus covered with thick band of hairs along its upper and lower edges.

Male abdomen five jointed, 3-5 joints fused. Anterior male pleopod is wanting in the unique specimen, may be because of the juvinile stage of the specimen.

The alchol preserved specimen is light brown in colour.

Remarks : The specimen was described by Alcock (1898 : 116) as *Xantho* (*Lophoxanthus*) *scaberrimus* but the literature reveals that the specimen is distinctly different from the species *scaberrimus* Walker and hence the specimen is renamed as *Demania alcocki* sp. nov. in the present paper. The specimen is closer to *D. garthi* Guinot 1981, than

to any other known species of the genus. But differs from *garthi* by the presence of large granular or pimply, textural pattern of carapace, chelipeds and legs, versus the minute, sharp, granules on the carapace and appendages of *D. garthi*. Length breadth ratio of *D. alcocki* and *D. garthi* are also different, and gives them a different shape of their carapaces. The antero lateral teeth of *D. alcocki* Deb are blunt, conical in shape and not as small, sharp, spines as in the *D. garthi*. The absence of pleopod in the *D. alcocki* Deb prevents its study and comparison with the pleopods of other known allied species.

Distribution : So far the species is known only from its type locality i. e. Bay of Bengal, Orissa coast.

Demania indiana sp. nov.

(Pl. I, fig. 2)

Material examined : One large male crab from Balasore Bay, Orissa coast, Bay of Bengal, collected by "Golden Crown B. F." a Trawler, on August 1908.

Measurements : Width : 84 mm ; Length : 82 mm ; Fronto orbital edge—35 mm ; Front—18 mm.

Diagnosis : Carapace pentagonal in shape, very convex fore and aft and moderately so from side to side. Regionl convexities are well marked by deep, smooth grooves. The regional areoles covered with squamiform tubercles, most apparent and pointed along the anterolateral sides, almost absent or indistinct in the middle and anterior part ; large, smooth and pea like on the posterior third of the carapace. Anterolateral sides rounded, edge thick, divided into four crenulate, shallow lobes, excluding the outer orbital corner. Posterolateral sides granular and convergent. Posterior margin of carapace beaded, straight. Front angularly produced medially, bilobed, lobes concave and obliquely sloping, outer angle distinct. Supra orbital edge tumid and rough edged. Whole under surface of carapace including maxillipeds, sternum, male pareopods are closely covered with large granules.

Chelipeds equal, upper, outer and lower surfaces of arm, wrist and palm covered by smooth, flat topped, wart like tubercles, which are largest on outer surface of palm and arranged in longitudinal rows, which continues on the fixed finger. Upper edge of arm terminating in two, broad, foliaceous lobes, inner angle of wrist is a strong spine and a much smaller tubercle beneath. Upper edge of palm armed with three, large, conical teeth, upper edge of dactylus tuberculate and rough. Fingers grooved, tips pointed, cutting edges dentate. Leg

joints except dactylus, are sharply creasted on their upper edges, only the upper distal corner of merii drawn into a prominent, triangular, teeth or a blunt spine. Outer surfaces of leg joints roughened with granules. The dactylus of all legs rounded and covered with an upper and a lower band of thick, brownish fur.

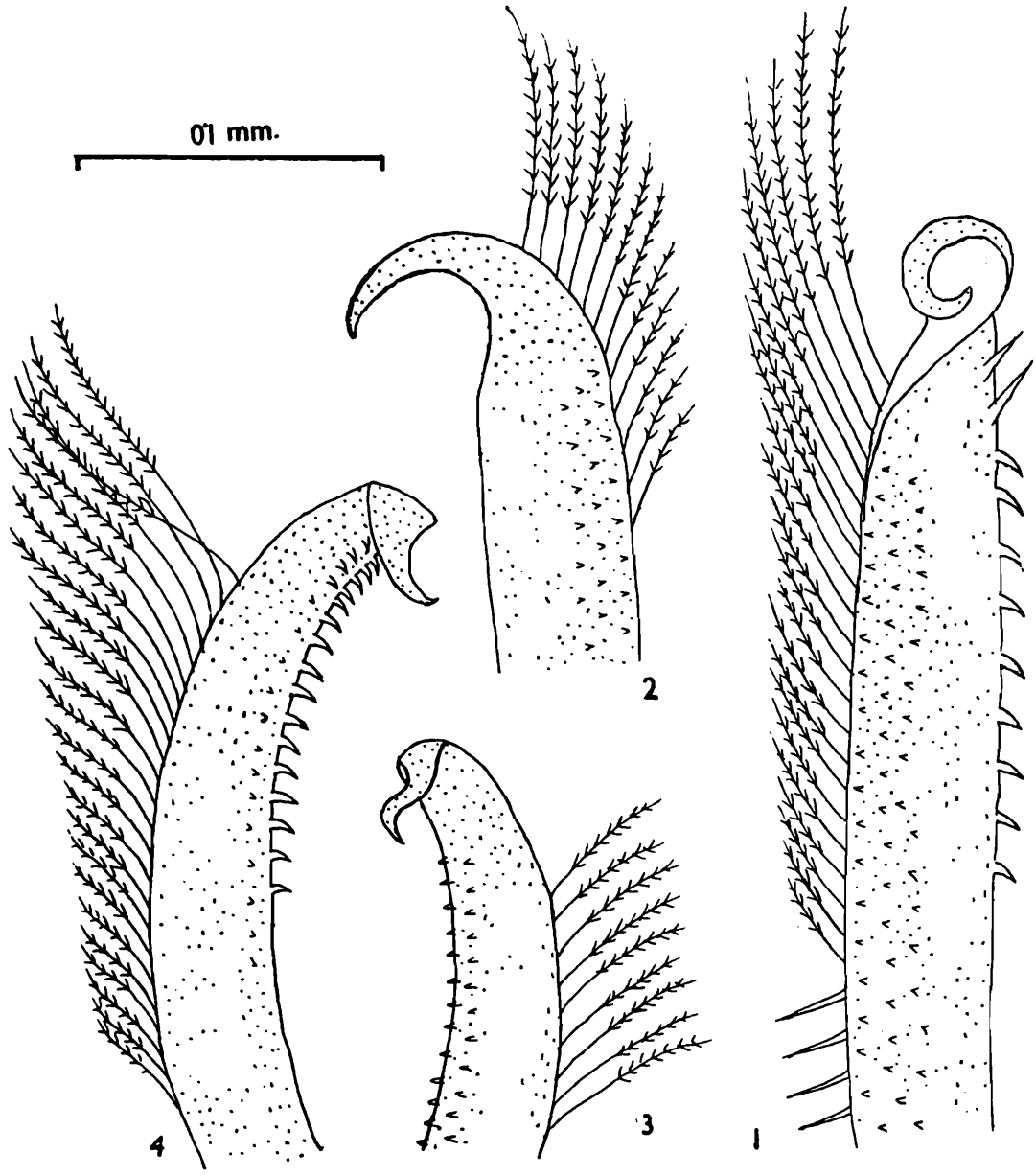

Fig. 1-4. 1 & 2. Anterior male pleopol, two aspects of *Demania indian* Deb.
3 & 4. Anterior male pleopod, two aspects of D. baccalipes (Alcock).

Anterior male pleopod (Fig. 1 and 2) is a tubular, grooved process, gradually tapering into an acutely drawn twisted, spiral, recurved spine. Inner subapical area adorned with a row of 25-30 long, feathery setae and outer side of sub apical region armed with small spinules and one or two setae only.

Remarks : This unique specimen was wrongly identified and labelled as *Xantho* (*L*) *scaberrimus* Walker, but now its apparrent similarity and distinct differences with *D. toxica* is very clear.

The presence of a prominent, blunt spine or teeth on the upper distal corners of merii of walking legs of *D. indiana* Deb are the main recognisable difference with the type of *D. toxica* Garth specimen. Other major differences of *D. indiana* are the presence of spirally coiled, recurved spine like distal apex of the anterior male pleopod ; and less scabrous nature of the carapace owing to the flatness of tubercles etc, which at once differentiate the *D. indiana* Deb from *D. toxica* Garth.

Distribution : East coast of India, Bay of Bengal.

Demania baccalipes (Alcock)

(Pl. II, fig. 4)

Xantho (*Lophoxanthus*) *scaberrimus* var. *baccalipes* Alcock 1897 : 117 ; Chhapgar 1957 : 29.

Xantho reynaudii var. *baccalipes*, Balss 1938 : 51.

Damania scaberrima baccalipes, Guinot 1971 : 1074.

Demania baccalipes Sakai 1976 : 421 ; Garth and Alcala 1977 : 650 ; Guinot 1979 : 59 ;

Material examined : Type male Z.S.I., Regd no. C 5079/1, from Sri Lanka, measuring width-61 mm ; Length—47 mm.

One male from Bombay and four males from Sri Lanka, are also examined.

Diagnosis : Front slightly produced beyond the orbital edge, free edges of lobes concave and little oblique. Upper and lower surfaces of crab distinctly tuberculate, surfaces of maxillipeds, sternum and male pareopods are worn in apparance. Four, triangular antero lateral teeth are low and finely crenulate. Upper edges of arm of chelaepeds adorned with a raw of large tubercles, the last two tubercles are very prominent. Outer surfaces of wrists and palms covered with irregular and worn tubercles, inner corner of wrist adorned with one large and one small teeth, inner surface of palm rough. Upper edges of merii of legs adorned with a row of large berry like tubercles, the upper edges of carpus and propodus are roughly crenulate.

Remarks : *D. baccalipes* (Alc.) is a large distinctive species, its poisonus nature is yet to be ascertained. Beaded upper edges of merii of walking legs differentiate *D. baccalipes* from other allied species.

Distribution : West coast of India, Sri Lanka, Malacca Strait, Japan.

Demania cultripes (Alcock)

(Pl. 2, fig. 3)

Xantho (*Lophoxanthus*) *scaberrimus* var. *cultripes* Alcock 1898 : 117.

Demania scaberrima cultripes ; Guinot 1969a : 235 ; 1971 : 1074 ;

Demania cultripes ; Guinot 1977 : xxii, pl. 6 fig. 7-8 ; 1979 : 61 ; 1981 : 1122.

Material examined : Type male from Singapore, Z. S. I., Regd. no. 4733/9, measuring width—64mm, Length—50 mm.

Diagnosis : Carapace pentagonal, frontal lobes produced, oblique, free edge concave. Surface tubercles faint, worn except on antero-lateral sides, posterior one third of the carapace and upper outer s-urfaces of wrists and palms. First two anterolateral teeth low, last two teeth prominent. Upper edge of arm of chelipeds adorned with two, rounded, broad lobes. Crests of merus, carpus and propodus of legs sharp, entire. The merus is bicarinate and propodus creted on their lower edges.

Distribution : Singapore, New Caledonia.

SUMMARY

Demania alcocki sp. nov. and *D. indiana* sp. nov. two crabs from India are described and their relationship with other allied species discussed. Diagnosis for the other existing species, a key for easy identification and necessary illustrations for them are provided.

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