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ELAMENOPSIS MANGALIS SP. NOV., A NEW SPECIES OF
MANGROVE-DWELLING HYMENOSOMATID CRAB FROM
SINGAPORE (DECAPODA, BRACHYURA)

BY

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RÉSUMÉ

Une nouvelle espèce de crabe hymenosomatide, *Elamenopsis mangalis* sp. nov., est décrite de la mangrove de Singapour. Elle ressemble étroitement à *E. octogonalis* (Kemp) et *E. hirtirostris* Lucas & Davie, mais, par la structure abdominale mâle, est plus proche de *Halicarcinus hondai* (Takeda & Miyake). Les affinités de *E. mangalis* avec ces espèces est brièvement discutée et de courtes notes sur son écologie sont aussi fournies.

INTRODUCTION

The crabs of the family Hymenosomatidae are very poorly known in South East Asia, and the actual identities of the several species reported so far from this region are rather doubtful. As noted by Lucas (1980) in his excellent review of this family, "...The Indo-Malayan Region, which is central to the geographical distribution of the Hymenosomatidae, is particularly poorly collected". This is probably because they are very small and inconspicuous crabs, and are usually very well camouflaged.

Rathbun (1909, 1910) was the first to describe a new species from the coral reefs in Singapore - *Rhynchoplax corallicola* (at present transferred to the genus *Halicarcinus* White, 1846 by Lucas, 1980). Subsequently, *Trigonoplax unguiformis* (De Haan, 1839), *Elamena sindensis* Alcock, 1900 and *Elamenopsis inachoides* (Alcock, 1900) were recorded from Singapore (Sakai, 1938, 1976; Yang, 1979; Lucas, 1980).

Recently, two specimens of a mangrove-dwelling hymenosomatid were collected from Singapore. Studies showed that they did not belong to any of the four species so far reported from Singapore. They also could not be identified with any of the known species. They are here regarded as representatives of a new species, *Elamenopsis mangalis* sp. nov.

In this paper, a description is provided of *Elamenopsis mangalis*, and its affinities with related taxa are discussed. All type material is deposited in the Zoological Reference Collection (ZRC), Department of Zoology, National University of Singapore. The first male gonopods are indicated as G1 for con-

venience of reference. The terminology used in this paper follows that used by Lucas (1980).

***Elamenopsis mangalis* sp. nov.** (fig. 1)

Diagnosis. — Carapace ovate, posterolateral angle with a broad, short, forwardly directed spine, above base of first ambulatory leg. Rostrum with three unfused, acutely triangular lobes; median lobe longer and below margin of lateral lobes. Chelipeds not elongated, equal. Ambulatory legs long, not laterally compressed, merus with blunt, terminal spine; dactylus long, decurved, with one sharp, subterminal tooth and one to four (occasionally none) smaller, recurved teeth on the ventral margin. Male abdominal segments III and IV fused. First male gonopod (G1) almost straight, slender, tapering to a blunt tip, with setae on both lateral margins. Mangrove-dwelling species.

Material examined. — Holotype, 1 ♂ (ZRC no. 1985.2003) (3.3 by 2.3 mm), Mandai mangrove swamp, Singapore (1°26'30"N 103°46'E), coll. H. K. Tan, December 1983. Paratype, 1 ♂ (ZRC no. 1985.2004) (2.7 by 2.0 mm), Kranji mangrove swamp, Singapore (1°25'N 103°44'E), on detritus covered rock, coll. P. K. L. Ng, 2 February 1982.

Description. — Carapace ovate, surface smooth, glabrous, with gastrocardiac, cervical and thoracic grooves well defined. Front divided into three unfused, blunt, acutely triangular lobes, the median one being longest and located slightly below the other two. Anterolateral margins strongly convex, smooth. Posterolateral angle with a broad, short, forwardly directed spine, above base of first ambulatory leg. Epistome distinct, anterior margin straight, posterior margin obtusely triangular. Third maxillipeds covering about half of buccal cavity, exopod with distinct flagellum, ischium slightly shorter than merus on their lateral margins, all segments setose on inner margins.

Chelipeds approximately equal. Surfaces of palm smooth, fingers as long as palm. Cutting edges of dactylus and pollex with numerous well developed blunt teeth.

Ambulatory legs long, second pair longest, not laterally compressed. Merus with blunt, terminal spine. Dactylus long, decurved, with one sharp, subterminal tooth, and one to four (occasionally none) smaller, recurved teeth on ventral margin. Dactylus of first pair shortest.

Male abdomen 5-jointed, the third and fourth segments completely fused, with no trace of sutures. First two segments very narrow, the fifth trapezoidal, the sixth triangular, with the sides slightly convex, tip rounded and slightly longer than the fifth. G1 slender, almost straight, tapering to blunt tip, cone-shaped, with setae on both lateral margins.

Remarks. — *Elamenopsis mangalis* sp. nov. is placed in the genus *Elamenopsis* because its third maxillipeds do not cover the bulk of the buccal cavity, and its G1 is slender and straight. Externally, it is extremely close to *E. octogonalis*

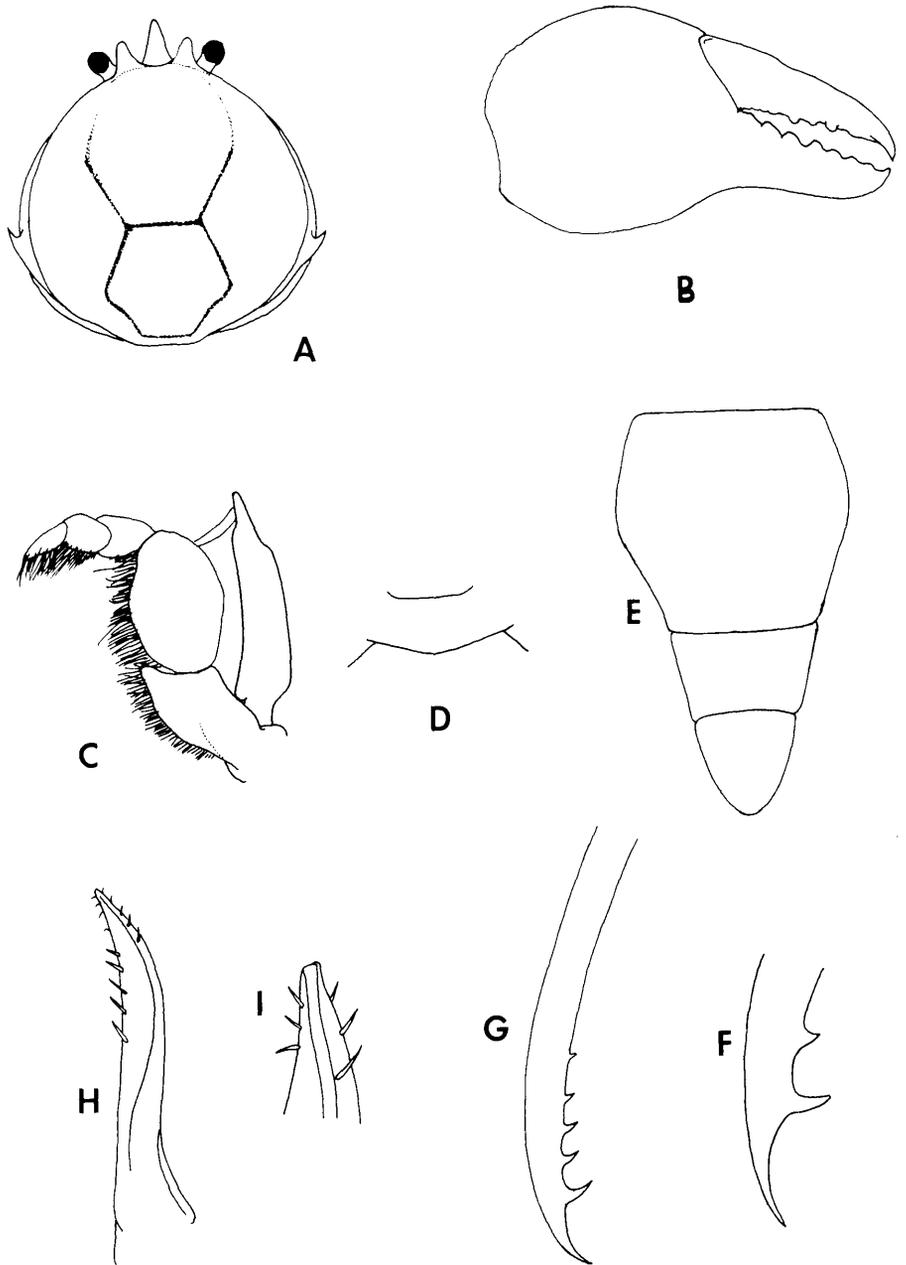


Fig. 1. *Elamenopsis mangalis* sp. nov. Holotype male. A, carapace; B, right cheliped; C, left third maxilliped; D, epistome; E, abdomen; F, dactylus of left second ambulatory leg; G, dactylus of left third ambulatory leg; H, left G1; I, tip of left G1.

(Kemp, 1917) and *E. hirtirostris* Lucas & Davie, 1982, especially with regards to (1) the ovate carapace, (2) the presence of a spine on the posterolateral angle of the carapace, (3) a long, and decurved ambulatory dactylus, (4) a trilobed rostrum and (5) the straight and slender G1. *Elamenopsis mangalis* can however, easily be separated from these two species by having the spine on the posterolateral angle short and blunt (not long and sharp); by the three lobes of the rostrum being adjacent to one another (not distinctly separate); by the presence of a large, subterminal tooth and one to four smaller, recurved ones on the ventral margin of the ambulatory dactyli (only one large, subterminal tooth in *E. octogonalis* and about eight, recurved teeth in addition to the subterminal tooth in *E. hirtirostris*); by the fusion of the male abdominal segments three and four (not three to five); and by a straighter G1 with setae present on both lateral margins. The G1 of *E. octogonalis* (cf. Lucas & Davie, 1982) is similar to that of *E. mangalis*, but the hairs on the inner lateral margins are finer and more numerous. The G1 of *E. hirtirostris* however, is very different in having the tip very slender and elongated (cf. Lucas & Davie, 1982).

The fusion of the male abdominal segments three and four however, is anomalous for the genus *Elamenopsis* as defined by Lucas (1980). By his definition, all members of this genus have the third to fifth or fourth and fifth segments fused (and perhaps sometimes possibly all free). The only other species which is known to have segments three and four fused is *Halicarcinus hondai* (Takeda & Miyake, 1971) sensu Lucas (1980), but this species is very different from *E. mangalis* externally. Although *H. hondai* also has the spine at the posterolateral angle, its carapace appears to be less ovate, and the rostrum has only one lobe, which is elongated and tipped with long tufts of hair. Moreover, the male first gonopods are very different, with those of *H. hondai* being sharply bent at the base (cf. Lucas, 1980), and not straight like those of *E. mangalis*.

The unusual combination of characters possessed by *E. mangalis* thus makes it very difficult to determine its relationship with the other species in the genus and with *H. hondai*. Although the way the male abdominal segments are fused appears to be an important phylogenetic character, the tremendous degree of variation of this character within the family greatly reduces its value, for the moment at least. The G1, which has been used in phylogenetic studies of other groups of crabs also appears to be rather variable, and more will have to be known about the variability of this structure before its usefulness can be determined. The present inclusion of *E. mangalis* in the genus *Elamenopsis* is thus provisional until the various genera can be more phylogenetically defined.

As for the number of spines on the ventral margins of the ambulatory dactyli, there is considerable variation (table I). This variation would necessitate careful usage of this character in future taxonomic studies of the family.

This species appears to be restricted to mangroves, and has been found on rocks, driftwood and roots in the mangrove swamps of Singapore (D. H. Mur-

TABLE I

Total number of teeth on the ventral margin of the ambulatory dactyli

		Ambulatory leg number			
		1	2	3	4
Holotype male	Left side	5	2	5	5
	Right side	1	x	5	1
Paratype male	Left side	1	x	2	2
	Right side	1	2	3	2

"x" denotes cases where dactylus is damaged or missing.

phy, pers. comm.). It is the only mangrove species of the family known so far from these waters. *Elamenopsis mangalis* is normally covered with a thick layer of detritus which makes them extremely difficult to detect.

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