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# A NEW SPECIES OF *PERISESARMA* (CRUSTACEA: BRACHYURA: SESARMIDAE) FROM THE BAY OF BENGAL

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***ABSTRACT.* –** A new species of intertidal sesarmine crab, *Perisesarma bengalense*, is described from Sri Lanka and the Andaman coast of Thailand. This species was previously erroneously recorded from both places under the name *Chiromantes darwinensis* Campbell, 1967, a species that still must be considered endemic to northwestern Australia. The two species can be easily separated on male chela characters, including the shape of the dactylar tubercles, the pattern of dentition of the cutting margin of the dactylus, and the degree of granulation on the outer face of the palm.

***KEY WORDS.* –** Crustacea, Brachyura, Grapsidae, Sesarminae, Perisesarma, mangroves, Indo-West Pacific, new species.

## INTRODUCTION

The genus *Perisesarma* De Man, 1895, is now accepted into modern usage as the correct name for the species included in the subgenus *Sesarma* (*Chiromantes*) sensu Tesch (1917)(see Holthuis, 1977: 170-171). Campbell (1967) provided the most recent review of the genus and described three new species and one new subspecies from Australia. Subsequently, Serène (1975) recorded *Perisesarma darwinense* (Campbell, 1967) (as *Chiromantes darwinensis*) from Sri Lanka, which was the first record outside of Australian waters, and marked a major range extension. Later Naiyanetr (1998: 101) listed it in his checklist as being present around Phuket, western Thailand.

In 2000, during a visit to the Zoological Reference Collection, Raffles Museum, National University of Singapore, I was able to examine the specimens collected from Sri Lanka and reported on by Serène (1975). After comparing these specimens with true Australian examples of *P. darwinense* I was able to establish that the Sri Lankan crabs are not conspecific with the Australian ones, and belong to an undescribed species. In 1998 I was able to visit Phuket as a participant in the "International Workshop on the Biodiversity of Crustacea in the Andaman Sea and Island of Phuket, Thailand", sponsored by the DANIDA/PMBC Scientific Cooperation Programme. This allowed me the opportunity to examine the "*P. darwinense*" in the PMBC and confirm that it belonged to the new species herein described. Later, more specimens were collected from Ranong, to the north of Phuket, by an English expedition. I was also able to examine this material, together with fresh specimens from Sri Lanka, during a recent (2003) visit to the Raffles Museum.

This is the third species of *Perisesarma* to be newly described. Rahayu & Davie (2002) recently described two new species, *P. foresti* and *P. kriotos* from mangroves in southwestern Irian Jaya, Indonesia. The present new species brings the total to 19 *Perisesarma* species now recognised for the Indo-West Pacific region.

Abbreviations used in the text are: QM, Queensland Museum, Brisbane; c.b., carapace breadth; c.l., carapace length; G1, male first gonopod; PMBC, Phuket Marine Biological Center; ZRC, Zoological Reference Collection, Raffles Museum, National University of Singapore. Measurements given in the text are of the carapace breadth at the widest point, followed by length. Leg segments were measured in a straight line to give maximum dorsal length and so are not always the maximum possible length, and this should be borne in mind when using the ratios.

## TAXONOMY

SESARMIDAE DANA, 1851

### *Perisesarma* de Man, 1895

*Perisesarma* de Man, 1895: 208.

*Sesarma* (*Perisesarma*) – de Man, 1902: 541; Holthuis, 1977: 170-171.
*Sesarma* (*Chiromantes*) – Rathbun, 1909: 22, 1910: 309, 1918: 284; Tesch, 1917: 235, 255; Campbell, 1967: 2.

Type species. - *Sesarma dussumieri* H. Milne Edwards, 1853, designated by Campbell (1967: 2); not *S. bidens* (de Haan, 1833) as designated by Rathbun (1918: 284) as that species was not originally included in *Perisesarma* by de Man; and not *Sesarma* (*Perisesarma*) *eumolpe* de Man, 1895, as designated in error by Holthuis (1977: 170). Gender neuter.

### *Perisesarma bengalense* new species

(Figs 1A, C, E, G, 2)

***Material examined.*** – Holotype – male (21.9 x 18.4 mm)(ZRC 1972.10.18.1-5), mangrove near Pegasus Reef Hotel, Colombo, Sri Lanka, coll. R. Serène, 12 Oct.1972.

Paratypes – male (15.9 mm c.l.), male (15.9 x 13.1 mm), male (13.1 x 10.8 mm), female (18.0 x 14.3 mm)(ZRC 1972.10.18.1-5), mangrove near Pegasus Reef Hotel, Colombo, Sri Lanka, coll. R. Serène, 12 Oct.1972; 4 males (9.2 x 6.0; 13.2 x 10.5; 14.0 x 11.2; 19.6 x 16.3 mm), 3 females (10.9 x 8.5; 12.9 x 10.4; 18.1 x 14.7 mm)(PMBC-3126), Ao Nam Bor, Phuket Is., mangroves, 9 Sep.1974, coll. R. Serène; male (21.3 x 18.1 mm)(ZRC 2001.2333), Ranong, Thailand, coll. P. Clark, 19 Nov.2001; male (19.0 x 15.9 mm), ovig. female (11.9 x 9.5 mm)(ZRC 2001.2332), shrimp pond, Ranong, Thailand, coll. P. Clark, 7 Nov.2001; male (19.1 x 16.2 mm)(QMW26687), mangrove near Fort Galle, southern Sri Lanka, coll. P. K. L. Ng, 16 Jan.2001.

***Description.*** – Carapace rectangular; greatest width between exorbital angles; 1.18-1.5 times broader than long, largest males typically relatively more quadrate 1.18–1.2 times broader than long, females and smaller specimens relatively broader; smallest male measured (9.2 mm c.b.) has carapace ratio of 1.5, otherwise mean carapace ratio = 1.23. Carapace slightly vaulted; regions well defined; anterolateral margin with large triangular, sharp, exorbital angle and smaller, acutely triangular, epibranchial tooth; lateral margins subparallel, slightly concave, edged with row of short setae. Front ca. 0.55–0.6 times fronto-orbital width; sinuous; lateral angles obtuse. Post-frontal lobes prominent, rounded; median lobes slightly broader than laterals, lateral lobes not separated from inner orbital rim. Epi-branchial and branchial ridges prominent. Carapace surface relatively smooth, punctate, finely wrinkled in places. Setae short, forming clumps anteriorly, posteriorly confined to rows on branchial and epibranchial ridges. Antennal flagellum small, entering orbit. Basal antennular segment not swollen. Inter-antennular septum moderately wide, ca. 0.25 times width of front, and occupying most of width of frontal margin concavity.

Chelipeds subequal, large and robust; merus with posterior border carinate, granulate, with strong subdistal spine; anterior border forming an acute, broad, sub-distal spine; carpus with inner angle not produced; inner margin granular, inner face with vertical granular crest; outer margin and dorsal surface striated. Upper surface of palm with two transverse pectinate crests, and a third row of granules that sometimes may have one or a few pectinated tips. Primary crest composed of 14–18 tall, broad teeth. Secondary crest also strongly developed, slightly shorter than primary, with 13–15 shorter teeth. Outer surface of palm more-or-less evenly covered in smooth granules; with low but discernible median longitudinal granular row; naked except for small patch of setae in front of first pectinate crest. Inner surface of palm with a moderately raised granular vertical crest curving a little way towards fixed finger. Fixed finger distinctly flattened on outer surface, with suggestion of ridge ventrally; length cutting edge ca. 0.45 times length propodus. Ventral border of chela moderately concave at base of fixed finger. Dorsal surface of dactyl with 16–18 nearly symmetrical calcareous tubercles, all distinct, closely spaced and transversely broadened proximally, becoming more separated and more rounded towards tip; each tubercle longitudinally striated either side of a barely discernible, rounded, transverse peak. Fingers curved inwards; tips spooned, chitinous, with intermeshing apical points; a moderate gape between cutting margins over distal half; cutting margins serrated, both fingers with a stronger subdistal tooth; dactyl with a more prominent medial tubercle.

Walking legs medium length; flattened; very broad; third pair the longest, ca. 1.6 times maximum carapace width. Merus of third leg ca. 2.1 times longer than wide; propodus ca. 2.4 times longer than wide; dactylus subequal or slightly shorter in length than propodus, stout, slightly recurved; terminating in acute chitinous tip. Merus anterior margin with acute sub-distal spine; unarmed terminally. Carpus with accessory carinae on upper surface. Propodus with oblique accessory carina on inferior proximal portion of upper surface. Meri of legs 1-3 with scattered, small, distally directed prickles on cuticular terraces. Leg segments, except on meri, fringed with short setae and some longer, stouter setae. Small longitudinal band of fur on ventro-distal border of propodi and ventral border of dactyli of first and second legs of males; present but much reduced in females.

Male abdomen moderately broad; third segment the widest. Segment six ca. 2.1 times wider than long. Telson slightly longer than segment six; about as long as wide; evenly rounded.

G1 moderately stout, moderately curved; apical process corneous, strongly produced, angled anterolaterally. Gonopore sub-terminal, tip cut away ventrally. Long setae mainly restricted to lateral margin of distal third and around tip; mostly simple but some feathered setae proximally.

Colour of mature adult male: carapace mottled maroon, pink and grey, typically paler centrally and with darker maroon on frontal, branchial and intestinal regions. Upper surfaces of legs similarly mottled, with darker mottled bands on carpus and propodus. Chelipeds with dorsal surface of carpus and chela dark maroon, same colour extending across outer face of chela meeting a band of pale creamy yellow across lower third of outer ventral face of palm that extends in a line across lower half of fixed finger to meet cutting margin

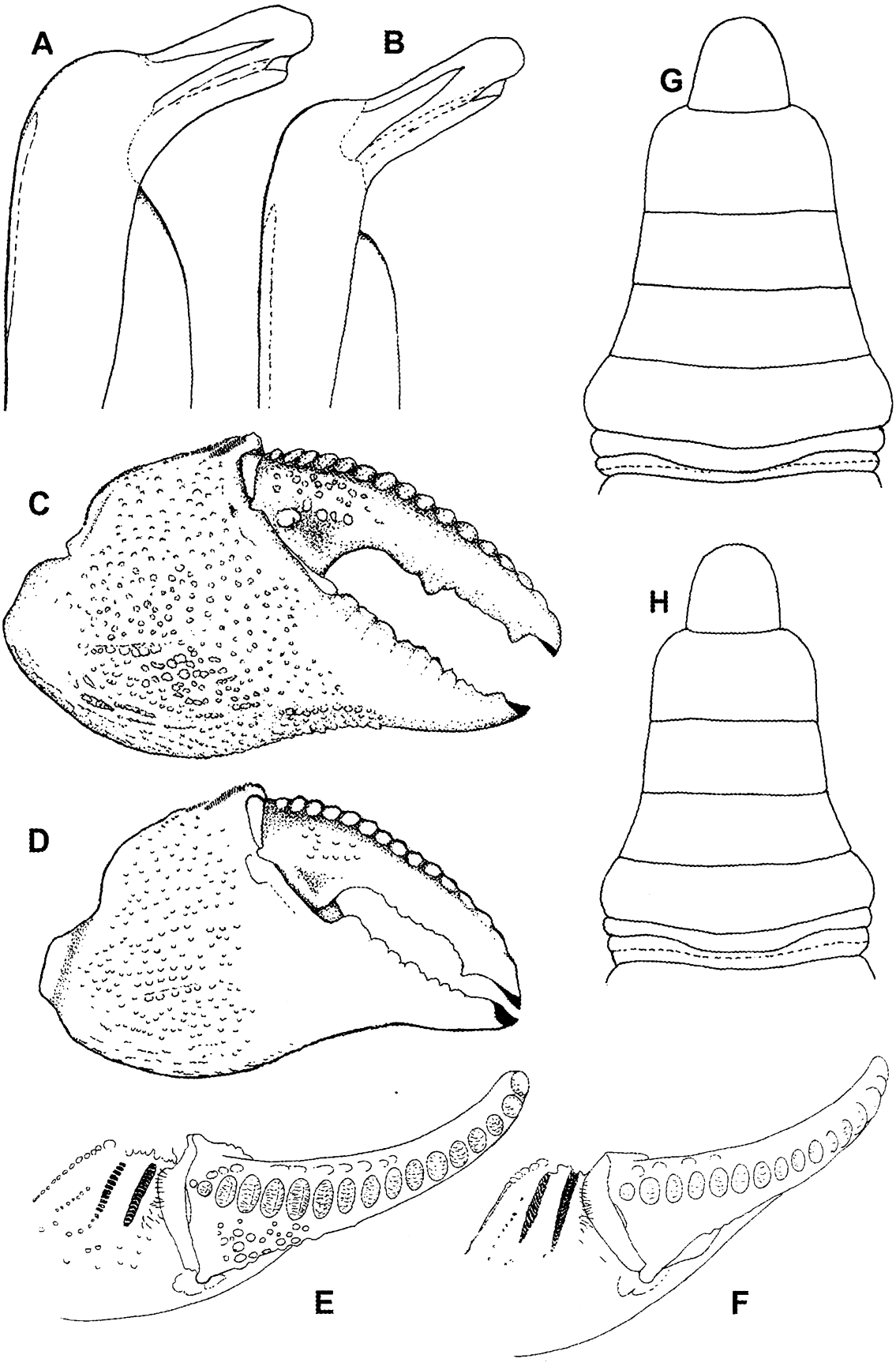


Fig. 1. A, C, E, G, *Perisesarma bengalense*, holotype male (ZRC 1972.10.18.1-5, 21.9 mm c.b.); B, D, F, H, *P. darwinense*, holotype, QM W2442, male, 20.0 mm c.b. A, B, tip of male first gonopods denuded of setae; C, D, outer face of right chelae; E, F, dorsal view of dactylar tubercles of right chelae; G, H, male abdomens.

just behind large subapical tooth; inner face of chela pale yellowish cream. Dorsal dactylar transverse tubercles paler apically.

***Habitat.* –** Intertidal mangrove zone.

***Etymology.* –** Named after the Bay of Bengal, to where it appears to be confined.

***Distribution.* –** Formally only known from Sri Lanka and the southwestern coast of Thailand, but it can be presumed to occur in suitable habitat around the entire coast of the Bay of Bengal.

***Remarks.* –** *Perisesarma bengalense*, new species, closely resembles *P. darwinense* Campbell, 1967, for which it has been mistaken, in having a similar number of well developed cheliped dactylar tubercles that are clearly defined to the distal end. On close comparison, however, there are a number of clear specific differences.

1. The tubercles along the dorsal margin of the dactylus of the male cheliped are noticeably broader, especially proximally, in *Perisesarma bengalense* (compare Figs. 1E and F), and there is a slightly greater number, 16–18 vs. 15–16 in *P. darwinense*.

2. The outer face of the palm, and the outer proximal part of the dactyl, are significantly more coarsely granular (compare Figs 1C and D).

3. In *Perisesarma bengalense* the cheliped dactylus has a prominent medial tubercle, that is lacking in *P. darwinense*; similarly *P. bengalense* has a subdistal tooth on both fingers, while in *P. darwinense* the subdistal tooth on the dactyl is placed further proximally, and that of


Fig. 2. *Perisesarma bengalense*, holotype _ (ZRC 1972.10.18.1-5, 21.9 mm c.b.). A, dorsal view; B, C, paratype male (ZRC 2001.2333, _ 21.3 c.b.). B, ventral view; C, frontal view of chelae.

the fixed finger is effectively obsolete (compare Figs. 1C and D).

4. The male abdomen of *P. bengalense* is slightly broader, with the length of segment six being slightly more than half the width. In *P. darwinense* the length of segment six is equal to half its width (compare Figs. 1G and H).

5. The tip of the G1 of *Perisesarma bengalense* is stouter and shorter than that of *P. darwinense* (compare Figs. 1A and B).

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