

**On a new species of pilumnid crab, *Rhizopa yangae* sp. nov.
from Singapore, with notes on the genus *Rhizopa* Stimpson, 1858
(Decapoda: Brachyura: Pilumnidae)**

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A new species of crab of the family Pilumnidae, *Rhizopa yangae* sp. nov. is described from a male collected from Singapore. The genus *Rhizopa* Stimpson, 1858 is also briefly reviewed, and a key provided to the known species.

Introduction

The genus *Rhizopa* Stimpson, 1858 (Decapoda: Brachyura: Pilumnidae) currently contains two species, the type *R. gracilipes* Stimpson, 1858, and *R. sasekumari* Serene, 1971. The status of the type species is still uncertain whereas the latter species was referred to this genus with some doubt. In this paper, a new species of *Rhizopa*, *R. yangae* sp. nov. is described from a male collected from Singapore by the author. The taxonomy of the genus *Rhizopa* is also briefly reviewed. All type materials are deposited in the Zoological Reference Collection (ZRC), Department of Zoology, National University of Singapore.

***Rhizopa yangae* sp. nov.**

(Figs. 1 A-H, 2 E-F)

Diagnosis

Carapace quadrilateral, smooth, with scattered pubescence. Antero-lateral margins with three teeth, the first being low and truncate. Antero-lateral angles of third maxillipeds strongly produced. First male pleopod S-shaped, slender; second male pleopod short.

Male HOLOTYPE description

Carapace quadrilateral and covered with low, scattered pubescence. Surface smooth, regions poorly demarcated. Front bilobed with shallow but distinct V-shaped cleft. Frontal margin of each lobe convex, confluent with lateral lobule. Supra- and infra-orbital margins smooth, without notches. Antero-lateral margin with three teeth, first being a truncate lobe and separated from the supra-orbital margin by a notch. External orbital angle absent. Postero-lateral margins smooth and weakly convergent. Frontal and antero-lateral margins with short, scattered tufts of hair that do not completely mask the carapace outline. Tip of eye with tuft of brush-like hairs. Endostomial ridges absent. Surface of merus and ischium of third maxillipeds smooth, the latter with a shallow longitudinal groove, antero-lateral angle of merus strongly produced, exopod with a long flagellum. Ventral regions smooth and covered with patches of pubescence.

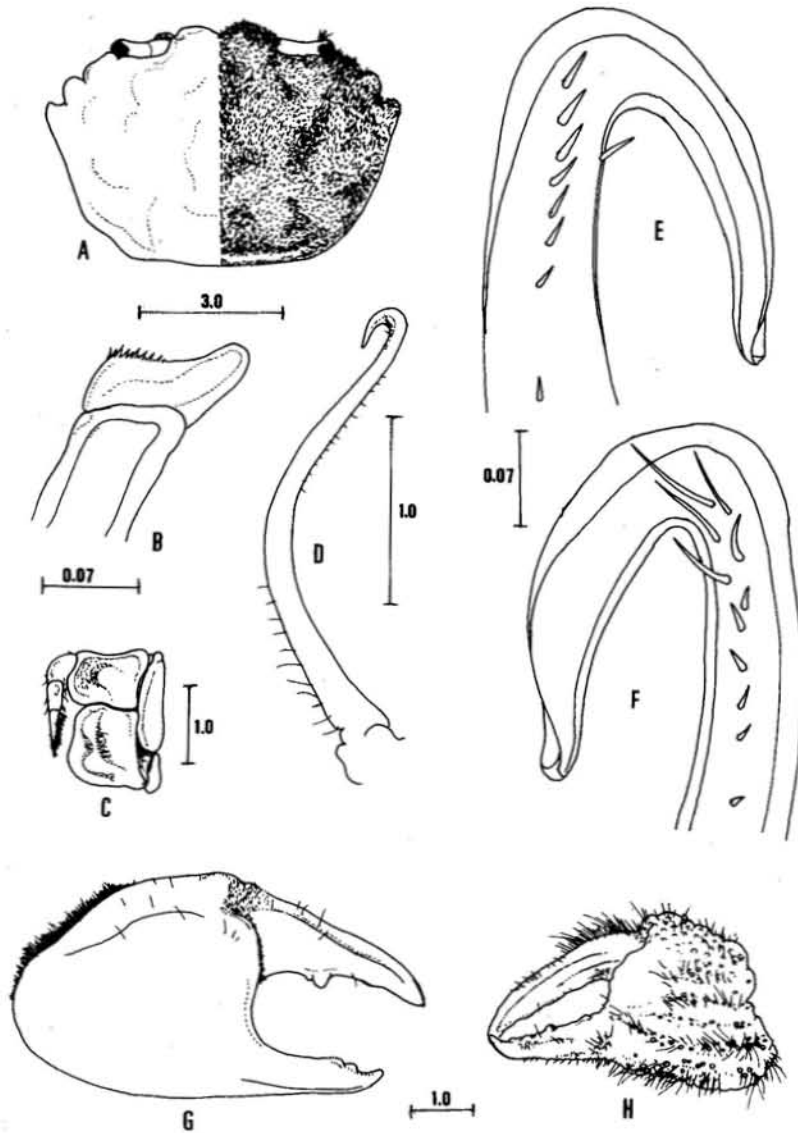


FIG. 1. *Rhizopa yangae* sp. nov. Holotype male. A. Dorsal aspect of carapace (left half denuded). B. Left second male pleopod. C. Third maxilliped. D. Left first male pleopod. E, F. Tip of left first male pleopod. G. Right chela. H. Left chela. (All measurements in millimetres.)

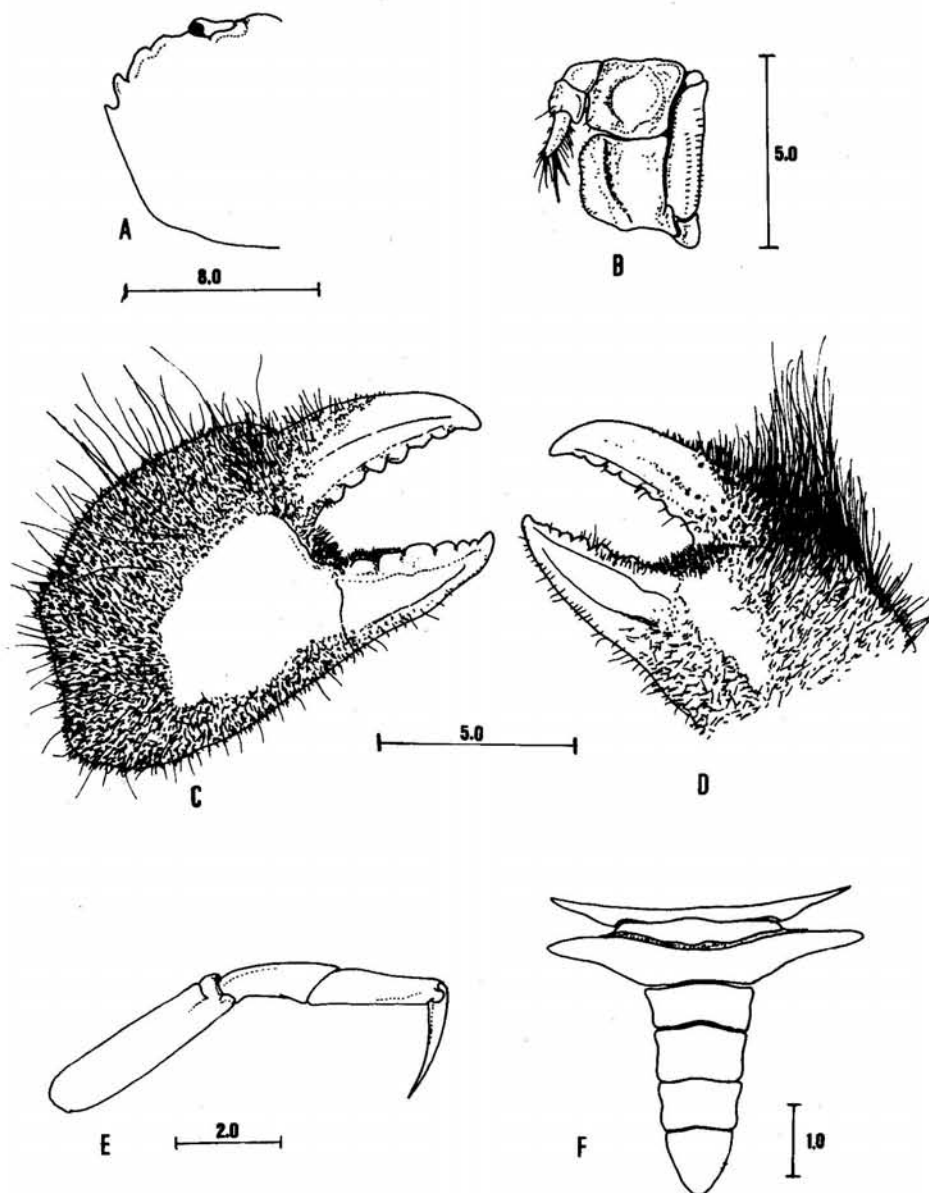
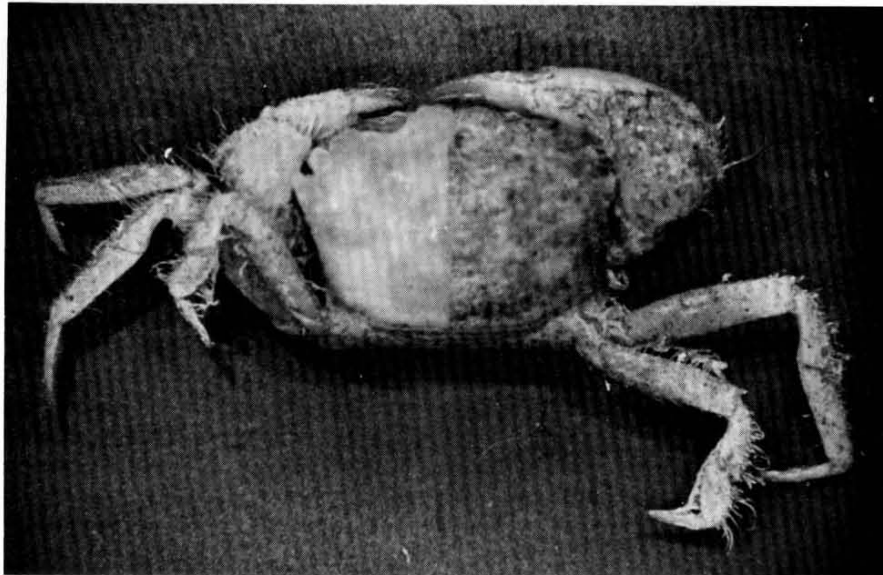
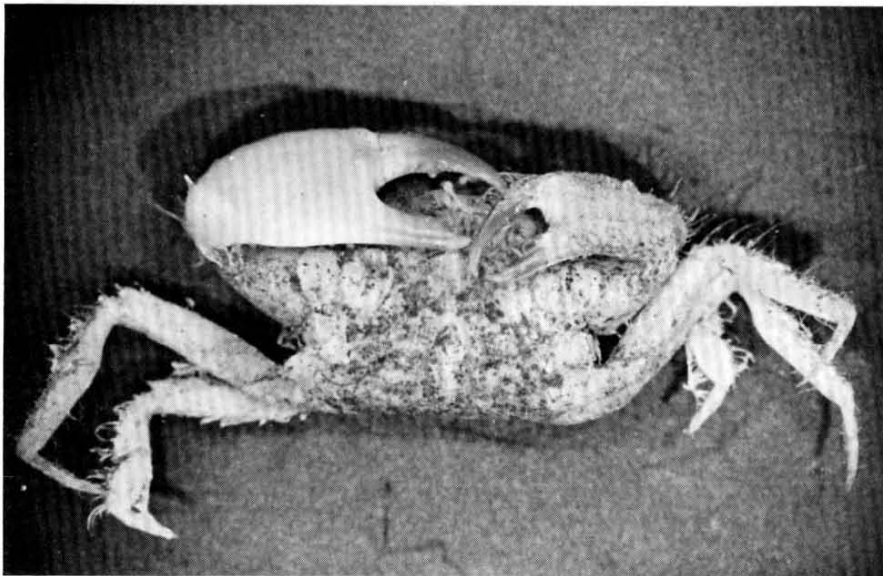


FIG. 2. A–D, *Rhizopa sasekumari* Serene, 1971. Holotype female. A. Dorsal aspect of carapace (denuded). B. Third maxilliped. C. Right chela. D. Left chela. E–F. *Rhizopa yangae* sp. nov. Holotype male. E. Right third ambulatory leg (denuded). F. Abdomen (denuded). (All measurements in millimetres.)



(a)



(b)

FIG. 3. *Rhizopa yangae* sp. nov. Holotype male (7.3 by 5.0 mm). (a) Dorsal view (left side denuded). (b) Ventral view.

Chelae asymmetrical, right one largest. External surface of right palm smooth and glabrous, with only the proximal margins fringed with hair. Surface of palm of left chela granulate and covered with low pubescence and scattered stiff hairs. Carpi of both chelae pubescent, with scattered stiff hairs. Carpal spine low and tubercle-like. Pollex of right chela with two low subterminal teeth; dactylus with two median teeth, the distal

one being much stronger and larger than the proximal one. Pollex of left chela with four low, indistinct teeth; inner margin of dactylus uneven, without any trace of teeth.

Ambulatory legs long, smooth, unarmed, margins of merus, carpus and propodus covered with scattered stiff and brush-like hairs. Third leg longest. Distal part of propodus with lateral knob that can lock on to proximal part of dactylus. Dactylus slender, smooth and slightly curved.

Abdomen seven segmented, first and third narrow and very broad, last triangular and slightly longer than penultimate.

First male pleopod distinctly S-shaped, distal portion strongly hooked downwards, five long hairs present subterminally. Second male pleopod short.

Material. 1 male (HOLOTYPE) (ZRC 1984.3.31.1) (7.3 by 5.0 mm), collected by P. Ng on muddy substrate at Sentosa Island, Singapore in June 1982.

Remarks

R. yangae sp. nov. is closest to *R. sasekumari* Serene, 1971 with respect to the armature and structure of the antero-lateral teeth, and it can easily be separated from the latter species by having only three teeth (not four), and is generally less hairy, with a thinner pubescence and very few long stiff hairs. This species is named after the curator of the Zoological Reference Collection, Mrs C. M. Yang, who has given the author so much help and encouragement over the years.

Notes on the genus *Rhizopa* Stimpson, 1858

The genus *Rhizopa* was established by Stimpson in 1858 to accommodate a new species, *R. gracilipes* collected from Hong Kong, material of which was neither figured nor described in detail. Rathbun (1910) described and figured parts of a male from Thailand, and Serene (1964) attributed a male from Port Jackson, Australia to this species, as did Griffin and Campbell (1969) and Griffin (1972) for numerous specimens collected from northern Australia. Griffin and Campbell (1969) also synonymized McNeill's (1929) *Speocarcinus luteus* with *R. gracilipes*. Guinot (1969, 1971), questioned the identity of Serene's and Griffin and Campbell's specimens, citing differences in the chelae, structure of the male abdomen and first male pleopod when compared with Rathbun's material. Guinot's figure of the first male pleopod of another specimen collected in Thailand and deposited in the United States National Museum, was significantly different from that of Serene's specimen, being 'blunted' at the tip and not long and tapered like most other pilumnids. Guinot also noted that Rathbun's *R. gracilipes* had a projecting tooth-like structure just behind the base of the propodal finger that overhangs the base of the dactylus. As such, she suggested that all the Australian specimens should instead be referred to *R. luteus* (McNeill, 1929), a suggestion which the present author agrees with.

The present new species, *R. yangae* and *R. sasekumari* further broaden the currently recognized generic definitions of the genus *Rhizopa* in having the antero-lateral margin cut into distinct teeth. The possession of an entire antero-lateral margin was one of the generic characters cited in the revision by Tesch (1918), and it is likely that this feature made Serene doubtful of the generic status of his species. The first male pleopod of *R. yangae* (figs 1 D, E, F) is typically pilumnid, similar to that of *R. luteus* (see Serene 1964). No males of *R. sasekumari* are known. *R. sasekumari* was briefly described and figured by Serene (1971), and details of its chelae, maxillipeds and carapace are provided here (figs 2 A-D) for comparative purposes, based on the holotype female

collected from Port Swettenham in West Malaysia and contained in the Zoological Reference Collection. Another female in the collection from Labuan, Borneo, was found to be identical to the holotype except for the carapace, which has fewer long, stiff hairs.

The genus *Rhizopa* is very close to *Typhlocarcinus* Stimpson, 1858, and the only reliable character that can be used to separate these genera is the possession of a strongly produced antero-lateral angle on the third maxillipeds in *Rhizopa*. That on *Typhlocarcinus* is rounded.

Guinot (1978), although recognizing *Rhizopa* as being of pilumnid lineage, was doubtful as to its exact status within the Pilumnidae, especially with respect to the 'blunted' first male pleopod and the structure of the chela of *R. gracilipes*. Thus, although she recognized two main groups within the Pilumnidae—a 'Pilumnid' group, and a 'Goneplacid' group, the latter which included the genus *Heteropilumnus* de Man, 1895 and most of the genera originally included in the subfamily Rhizopinae by Tesch (1918), she did not place *Rhizopa* in either and treated it as special category by itself.

The present author however does not consider the differences in the male pleopods and chelae as particularly significant, and feels that it can still be easily accommodated within Guinot's 'Goneplacid' group. The 'blunted' first male pleopod is not unique in pilumnids, and can be found in several species, for example, *Parapilumnus quadridentatus* de Man, 1895 (in Gordon 1931). It may however suggest that *R. luteus*, *R. sasekumari* and *R. yangae* are sufficiently different from *R. gracilipes* to warrant a new genus of their own, but this view cannot be substantiated until more material becomes available.

Provisional Key to the genus *Rhizopa*

- | | |
|---|----------------------|
| 1 Antero-lateral margin cut into distinct teeth | 2 |
| – Antero-lateral margin entire | 3 |
| 2 Antero-lateral margin with four teeth | <i>R. sasekumari</i> |
| – Antero-lateral margin with three teeth | <i>R. yangae</i> |
| 3 Strong projecting tooth behind base of chelal propodus that overlaps base of the dactylus | <i>R. gracilipes</i> |
| – No such projecting tooth | <i>R. luteus</i> |

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