

LUTEOCARCINUS SORDIDUS, NEW GENUS AND
SPECIES, FROM MANGROVE SWAMPS IN
PENINSULAR MALAYSIA (CRUSTACEA: DECAPODA:
BRACHYURA: PILUMNIDAE: RHIZOPINAE)

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Abstract. — A new genus and species of mangrove-dwelling pilumnid crab of the subfamily Rhizopinae, *Luteocarcinus sordidus*, is described from mangrove swamps in western peninsular Malaysia. It can be separated from other littoral mud-dwelling genera in having a distinctively structured third maxilliped. It is the first rhizopine reported from littoral mangrove substrates.

Crabs of the Indo-West Pacific pilumnid subfamily Rhizopinae Stimpson, 1858 sensu Ng (1987) are small, usually mud-dwelling crabs that are complex taxonomically. Ng (1987) recognized 20 genera with 74 species in the subfamily. However, several of the species, and some of the genera, were only provisionally classified in the Rhizopinae. Almost all occur in sublittoral waters.

In the present paper, a new genus and species, *Luteocarcinus sordidus*, is reported from littoral mangrove areas in western peninsular Malaysia. A diagnosis is provided for the genus and species, and affinities with other taxa discussed. The abbreviations G1 and G2 are used for the male first and second pleopods respectively. Measurements are included for the carapace width and length. Type specimens, consisting of two males and two females, are deposited in the Zoological Reference Collection of the Department of Zoology, National University of Singapore.

Family Pilumnidae Samouelle, 1819
Subfamily Rhizopinae Stimpson, 1858
Luteocarcinus, new genus

Diagnosis. — Anterolateral margin arcuate, without distinct teeth, lobes or indentations, slightly crested, confluent with slightly divergent posterolateral margins.

Posterior margin of epistome distinctly separated into four rectangular lobes by three deep clefts; median lobes small, squarish, outer lobes very broadly rectangular. Third maxilliped broad, almost completely covering buccal cavity when closed, not forming any rhomboidal gap; merus large, distinctly wider than ischium, outer anterolateral angle lobiform, rounded, not strongly produced outwards, inner angle produced, tip rounded; ischium quadrate, inner margin gently and evenly rounded; exopod stout, inner margin smooth, without sharp subterminal tooth, distal area expanded to form broad cristiform lobe, distal flagellum well developed, extending beyond width of merus. Male gonopore sternal, opening from coxa of last ambulatory leg via very narrow channel formed by fused adjacent sternites. Male abdomen with seven freely articulating segments; first very narrow, not reaching base of last ambulatory coxa; second narrow; third trapezoidal, lower margin sinuous, upper margin slightly concave, lateral margins slightly concave; fourth to sixth progressively less trapezoidal, more squarish, lateral margins slightly concave to almost straight; seventh distinctly triangular, tip rounded, lateral margins slightly convex.

Type species. — *Luteocarcinus sordidus*, new species, designated herein.

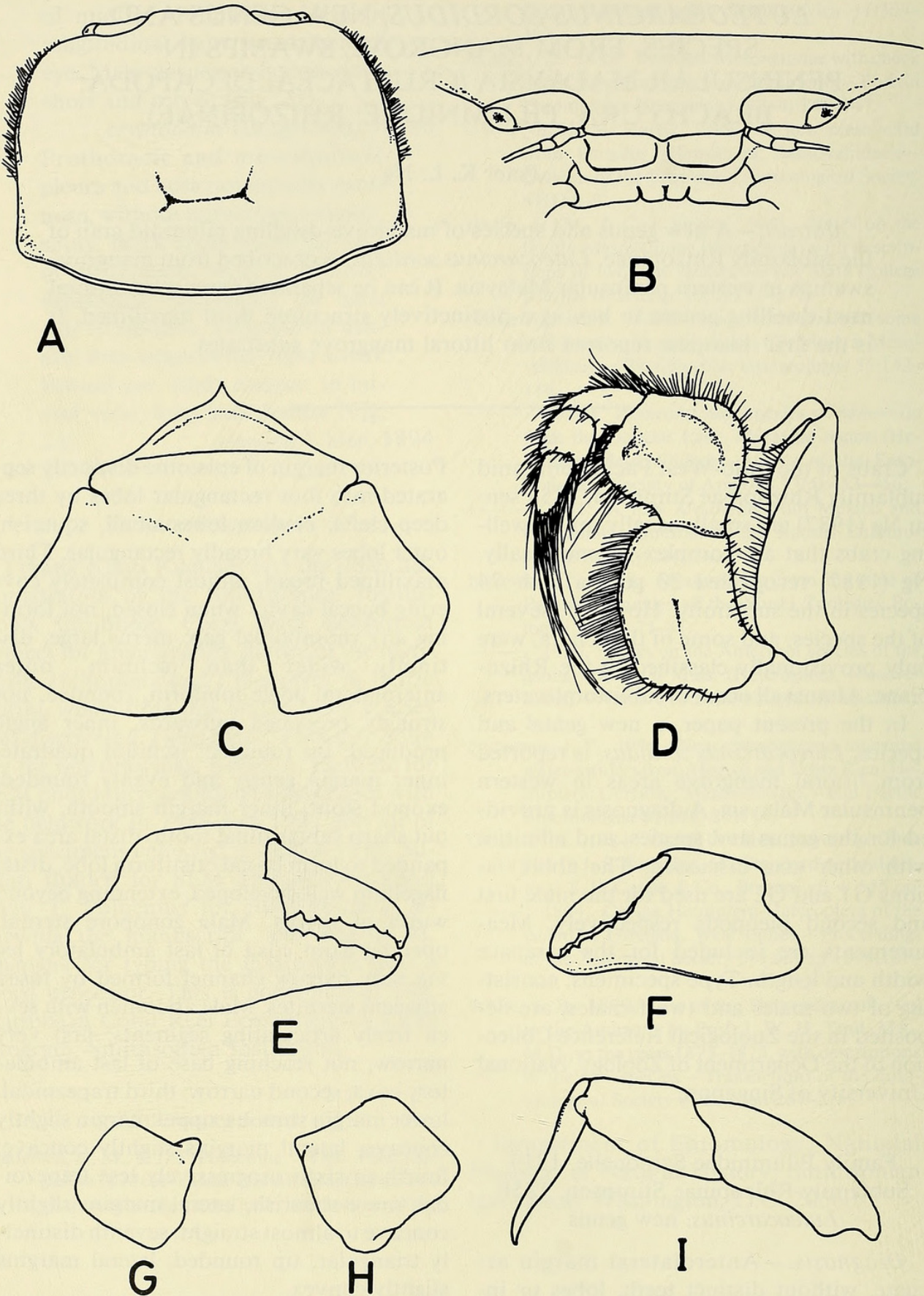


Fig. 1. *Luteocarcinus sordidus* holotype male: A, Carapace; B, Face and dorsal border of epistome; C, Sternum; D, Left third maxilliped; E, Right chela; F, Left chela; G, Left cheliped carpus; H, Right cheliped carpus; I, Dactylus, propodus and carpus of left last ambulatory leg.

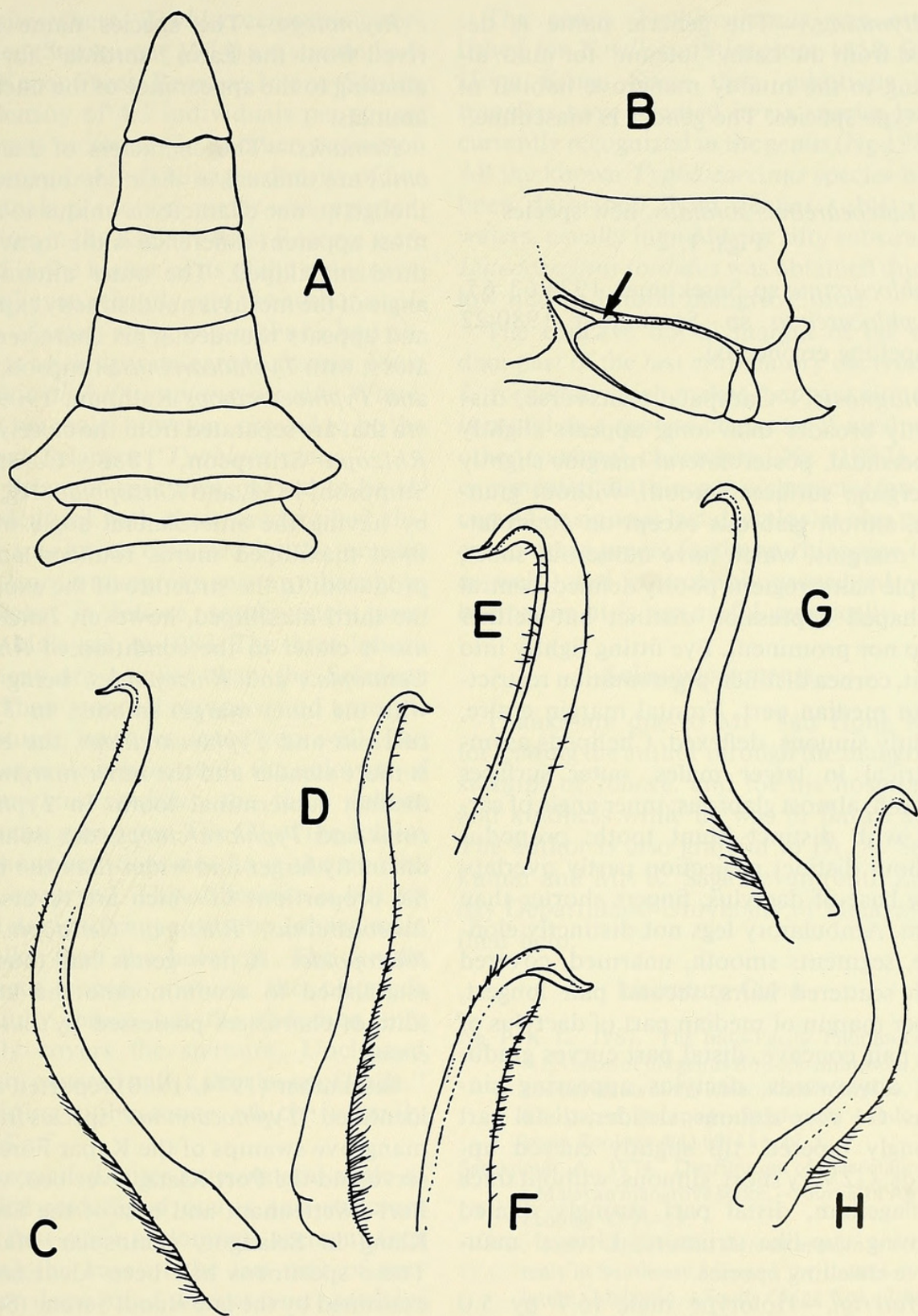


Fig. 2. *Luteocarcinus sordidus* A–F, holotype male; G, H, paratype male. A, Abdomen; B, Left gonopore (arrow); C, E, G, Left G1 (dorsal view); D, F, H, Left G1 (ventral view).

Etymology.—The generic name is derived from the Latin “luteum” for mud; alluding to the muddy mangrove habitat of the type species. The gender is masculine.

Luteocarcinus sordidus, new species

Figs. 1, 2

Typhlocarcinus sp. Sasekumar, 1974:63, 65.

Typhlocarcinus sp. Sasekumar 1980:22 (spelling erroneous).

Diagnosis.—Carapace transverse, distinctly broader than long; appears slightly trapezoidal, posterolateral margins slightly diverging; surfaces smooth, without granules, almost glabrous except on anterolateral margins, which have numerous short, simple hairs; regions poorly defined, central H-shaped depression distinct but neither deep nor prominent. Eye fitting tightly into orbit, cornea distinct, pigmentation restricted to median part. Frontal margin entire, slightly sinuous, deflexed. Chelipeds asymmetrical in larger males, outer surfaces smooth, almost glabrous; inner angle of carpus with distinct blunt tooth; propodus without distinct projection partly overlapping base of dactylus; fingers shorter than palm. Ambulatory legs not distinctly elongate, segments smooth, unarmed, covered with scattered hairs, second pair longest, upper margin of median part of dactylus of last pair concave, distal part curves gradually downwards, dactylus appearing sinuous. G1 very sinuous, slender, distal part strongly tapered, tip slightly curved upwards; G2 very short, sinuous, without trace of flagellum, distal part strongly dilated forming cup-like structure. Littoral mangrove-dwelling species.

Material.—Holotype male (6.7 by 5.0 mm), Sementa mangroves, Selangor, peninsular Malaysia, leg. K. Sagathevan, 1988; paratype male (4.7 by 3.4 mm), 2 paratype females (5.9 by 4.2 mm, 5.7 by 4.1 mm), mangrove mud, near Batu Pahat, Johore, peninsular Malaysia, leg. P. K. L. Ng, May 1983.

Etymology.—The species name is derived from the Latin “sordida” for dirty, alluding to the appearance of the uncleaned animals.

Remarks.—The characters of *Luteocarcinus* are unusual in their combination, although no one character is unique to it. The most apparent difference is the form of the third maxilliped. The outer anterolateral angle of the merus is not distinctly expanded and appears rounded. This character affiliates it with *Typhlocarcinus* Stimpson, 1858, and *Typhlocarcinops* Rathbun, 1909, genera that are separated from the closely allied *Rhizopa* Stimpson, 1858, *Ceratoplax* Stimpson, 1858, and *Rhizopoides* Ng, 1987, by having the anterolateral angle of their third maxilliped merus rounded and not produced. In the structure of the exopod of the third maxilliped, however, *Luteocarcinus* is closer to the condition of *Rhizopa*, *Ceratoplax* and *Rhizopoides*, being stout, with the inner margin smooth. In *Typhlocarcinus* and *Typhlocarcinops*, the exopod is more slender and the inner margin has a distinct subterminal tooth. In *Typhlocarcinus* and *Typhlocarcinops*, the ischium is distinctly larger and wider than the merus, the proportions of which are reversed for *Luteocarcinus*, *Rhizopa*, *Ceratoplax* and *Rhizopoides*. A new genus has thus been established to accommodate the unusual suite of characters possessed by *Luteocarcinus*.

Sasekumar (1974, 1980) reported an unidentified “*Typhlocarcinus*” species from the mangrove swamps of the Kapar Forest Reserve and the Port Klang river bed, west of Port Swettenham and east of the Strait of Klang in Selangor, peninsular Malaysia. These specimens had been identified and examined by the late Raoul Serène (Sasekumar 1974), but are no longer extant, having been used for experiments (Sasekumar, pers. comm.). K. Sagathevan (pers. comm.), who is studying the ecosystem of the Selangor mangrove swamps, has informed the author that the “*Typhlocarcinus*” fide Serène is not common and is only occasionally seen. Two

of the sites where "*Typhlocarcinus* sp." were collected (Sasekumar 1974) are stream beds in the Kapar Forest Reserve. In one (Station 4), a density of 4.3 individuals per square meter was recorded. In another station on the river bed of Port Klang, a density of five individuals per square meter was reported. Both sites in the Kapar Forest Reserve were located in the higher parts of the mangrove.

Sagathevan recently sent the author a collection of small mangrove crabs he had obtained at a Selangor mangrove swamp. Most were *Xenophthalmus pinnotheroides* White, 1846. One male, however, proved to be the unknown Selangor "*Typhlocarcinus*."

The Selangor specimen proved to be almost identical with three unidentified rhizopine specimens collected by the present author from a mangrove swamp adjacent to Batu Pahat in Johore, southwestern peninsular Malaysia, in 1983. The three Johore specimens are smaller than the Selangor male. Their external carapace and appendage features, however, agree very well. The Selangor male is here made the holotype of *Luteocarcinus sordidus*, the three Johore specimens, paratypes. The G1 of the Johore male, however, does not have the tip distinctly upcurved. This difference is not regarded as significant since the Johore male is smaller than the holotype. The female specimens appear mature, the pleopods being fully setose, but the abdomen only partially covers the sternum. Uncleaned crabs are covered with a thin layer of "pile," resembling pubescence which is easily scraped off.

The rounded outer anterolateral angle of the third maxilliped merus and structure of the first male abdominal segment (not reaching the base of the last pair of ambulatory legs) of *Luteocarcinus sordidus* almost certainly led Serène to identify the earlier Selangor specimens as "*Typhlocarcinus*." Although *L. sordidus* is close to *Typhlocarcinus*, the form of its third maxilliped argues against its inclusion in that genus.

The genus *Typhlocarcinus* was established for *T. villosus* Stimpson, 1858, from Hong Kong. Since then, additions and transfers have resulted in six species being currently recognized in the genus (Ng 1987). All the known *Typhlocarcinus* species have been described from deeper sublittoral waters, usually in muddy or silty substrates. *Luteocarcinus sordidus* was obtained during low tide on littoral mangrove mud.

The concave dorsal margin of the median part of the last ambulatory dactylus in *L. sordidus*, which makes it appear sinuous, is useful as a species character if used with other external characters. Ng (1987) has commented that since this character (an upcurved or sinuous last dactylus) is also present in other genera (and non-rhizopine taxa as well), and is probably associated with burrowing, it is not useful generically.

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