

NOTES ON SOME INDO-PACIFIC PONTONIINAE. XII.  
THE RE-EXAMINATION OF THE TYPES OF *PONTONIA? BREVIROSTRIS*  
MIERS, 1884, WITH THE DESIGNATION OF A NEW GENUS,  
*PLATYPONTONIA* (DECAPODA, NATANTIA)

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In the course of checking the pontoniid shrimp fauna of the Seychelles Islands, the author had occasion to examine the specimens of *Pontonia? brevirostris* first described by Miers (1884) from the material collected by H.M.S. "Alert" in 1882 and preserved in the collections of British Museum (Natural History), London. Miers' doubts about the systematic position of the specimens are confirmed and a new genus is now made for this species. The opportunity is taken to amplify Miers' short description and to provide more detailed illustrations of its morphological features.

I wish to express my sincere thanks to Dr. A. L. Rice for permission to examine and report upon these specimens.

**Platypontonia** gen. nov.

Diagnosis of genus. — A commensal pontoniid shrimp of uncertain association. Body robust, depressed and smooth. Rostrum very short, dorso-ventrally flattened, triangular and toothless. Antennal spine present; hepatic spine and supra-orbital spines absent. Pleura of abdominal segments rounded. Telson broad, with large dorsal spines. Scaphocerite and eyes well developed. Mandible without palp; cutting edge of incisor process continued along anterior aspect of molar process. Maxillula normal. Maxilla with single elongated endite bearing a dense brush of setae along medial border. Exopods present on all maxillipeds. Arthrobranch present on third maxilliped. Second pair of pereopods subequal and similar. Dactyls of ambulatory pereopods slender, simple, without basal processes. Sternite of fourth thoracic sternite unarmed. Exopods of uropod with single lateral spinule only.

Type species. — *Pontonia? brevirostris* Miers, 1884.

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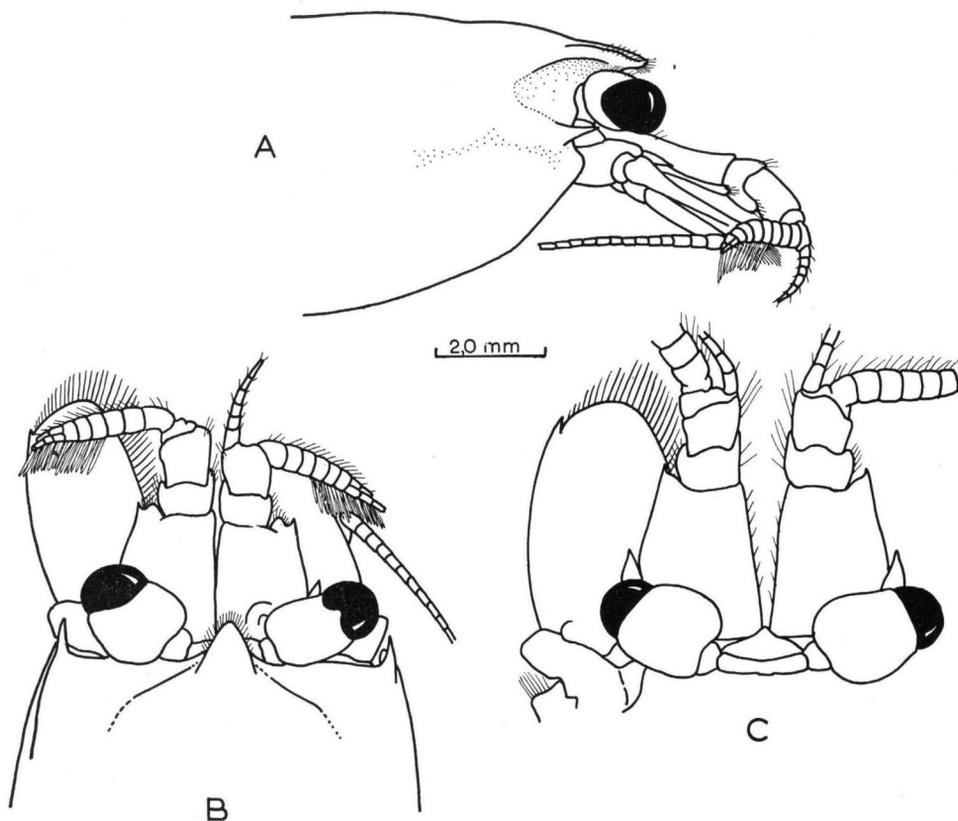


Fig. 1. *Platypontonia brevisrostris* (Miers), anterior part of body of male (holotype). A, lateral view; B, dorsal view; C, eyes and antennular peduncles of female allotype.

***Platypontonia brevisrostris* (Miers, 1884) (figs. 1-3)**

*Pontonia? brevisrostris* Miers, 1884: 562, pl. 51 figs. B, b-b''.

*Pontonia brevisrostris* Borradaile, 1898: 389; Borradaile, 1917: 390 (key), 391; Kemp, 1922: 260; Holthuis, 1952: 15.

Material examined. — One male and one female. Seychelles, coll. H.M.S. "Alert", March 1882. British Museum (Natural History), Registration No. 82.24.

Description of male. — Body robust, stout and depressed. Carapace smooth and feebly hirsute: abdomen glabrous. Rostrum very short, extending anteriorly only slightly beyond margin of ophthalmic somite: triangular in shape and strongly dorso-ventrally flattened, without dorsal or ventral teeth but with numerous short setae along lateral margins. A small median ventral carina is present posteriorly. Feeble post-orbital ridges are present, with a large shallow orbital depression. The inferior orbital angle is feebly produced and blunt. The antennal spine arises

from the anterior margin of the carapace and is long and slender. The hepatic spine is absent and there are no supra-orbital spines. The antero-lateral angle of the carapace is slightly produced and sub-rectangular. The abdomen has all pleura with rounded margins except the sixth segment, which has an acute posterior ventral angle. The third segment is not produced posteriorly in the dorsal midline. The telson is broad and glabrous, tapering to a small rounded posterior margin. The lateral margins are feebly convex. The dorsal spines are long, slender and slightly curved and extend over the lateral edges of the telson. The anterior pair arises from pits at one-fifth and the posterior pair from pits at three-fifths of the telson's length from the anterior margin. Both pairs of spines arise from positions close to the lateral border. Three pairs of terminal spines are present. The lateral pair are short and stout, about three times longer than wide and arise from positions slightly anterior to the other spines and are inclined medially. The intermediate spines are about twice as long as the lateral spines, six times longer than wide and have about half the length of the dorsal spines. The sub-median spines are short and slender, subequal to the length of the lateral spines. A few long setae are also present along the posterior margins of the telson.

The cornea is hemispherical. No ocellus is visible. The length of the eyestalk is about one and a half times the diameter of the cornea. It is slightly expanded proximally and feebly dorso-ventrally compressed. When anteroverted, an eyestalk reaches almost to the level of the anterior margin of the proximal segment of the antennular peduncle.

The basal segment of the antennular peduncle is broad, tapering gradually over the distal half, with a well developed disto-lateral lobe bearing a small acute lateral tooth. The stylocerite is acute, reaching to about the level of the middle of the basal segment and directed slightly laterally. A small ventral medial spine is present. The intermediate segment is short and broad, with a well developed setose medial lobe. The distal segment is about twice the length of the intermediate segment and one and a half times longer than wide. There are numerous long setae over the dorsal surface of the peduncle. The upper antennular flagellar rami are fused proximally for the first six segments which are short and stout and bear numerous short stiff setae over the medial aspect. The shorter free ramus consists of only two segments. The longer ramus consists of slender segments but only a few are still present. About twelve groups of aesthetascs are present. The lower flagella are wholly missing on the left side and only a few segments are still present on the right.

The coxal segment of the antenna is short and broad, dorso-ventrally compressed, with a well marked tubercle on the disto-medial angle. The basicerite is unarmed. The carpo-cerite is subcylindrical, slightly wider distally than proximally, about five times longer than wide. Only the proximal part of the right antennal flagellum is still present; the segments are rather short. The scaphocerite is broad, distinctly exceeding the antennular peduncle. The lateral border is convex and terminates in a small tooth. The lamella extends well beyond the

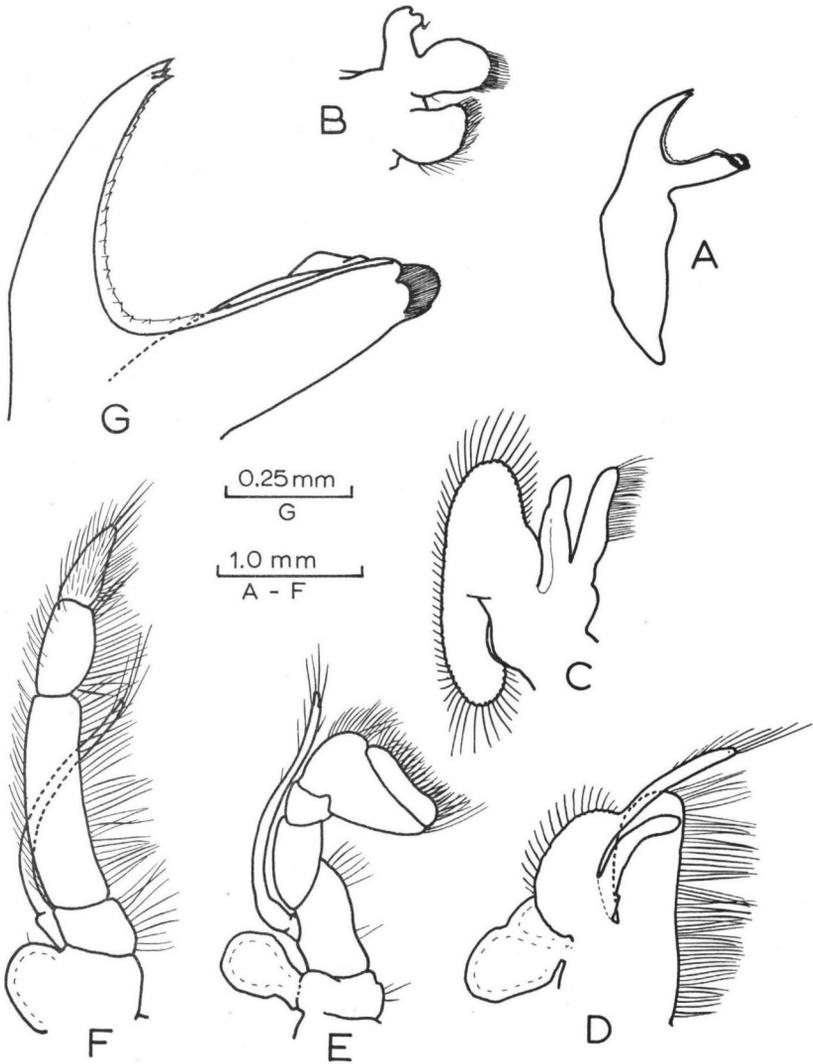


Fig. 2. *Platypontonia brevisrostris* (Miers), mouthparts of male holotype. A, mandible; B, maxillula; C, maxilla; D, first maxilliped; E, second maxilliped; F, third maxilliped; G, incisor and molar processes of mandible.

disto-lateral tooth; the anterior and medial borders are convex and meet at a blunt angle.

The labrum is broad, with a setose anterior margin, and projects forward beneath the bases of the antennular peduncles, but shows no special features. The paragnaths are large rounded lobes separated by a deep median fissure. The mandible is without a palp. The incisor process bears distally two larger teeth separated by a smaller tooth. The posterior margin of the incisor process forms a sharp cutting edge, bearing numerous small acute denticles, which curves medially

to run along the anterior aspect of the molar process to terminate distally in a small knob. Two larger knobs and another small knob are also present distally, all furnished with short bristles on their inner aspects. The maxillula bears a bifid palp, the median lobe of which bears a small hook-shaped appendage. The upper and lower laciniae are normally developed and provided with dense brushes of setae medially. The maxilla has a very long broad, flattened, simple endite, extending anteriorly beyond the tip of the palp to the level of the anterior margin of the scaphognathite. The distal two-thirds of the medial border of the endite is provided with a brush of long slender setae. The palp is stout, subcylindrical, tapering slightly distally and devoid of setae. The scaphognathite is normally developed and broad. Well developed exopods are present on all three maxillipeds. The exopod on the first maxilliped bears a well developed caridean lobe. The palp is long and extends beyond the anterior margin of the caridean lobe. It is slender and curved medially with several short and one long setae on its terminal fifth. There is no separation between coxal and basal endites but the coxal portion is produced anteriorly to exceed the tip of the palp. The whole of the medial border is provided with a dense brush of long slender setae. A feeble bi-lobed epipod is present. The second maxilliped is normally developed. A simple epipod, without a podobranch, is present. The median borders of the two terminal segments are densely setose. The third maxilliped extends to the anterior margin of the antennular peduncle. The two distal terminal segments are subequal in length. The terminal segment is subcylindrical and densely setose ventrally. The penultimate segment is flattened and ventrally convex. The merus and ischium are distinct. The medial and lateral margins are setose with longer and more numerous setae on the medial aspect. The exopod reaches to the base of the penultimate segment. A rigid rounded epipod is present and also a small but well developed arthrobranch.

Only the fourth left ambulatory pereopod is still attached to the body. The third left pereopod is still preserved. These appendages are stout. The dactyli are simple, long and slender, feebly curved and tapering, to end in a distinct unguis. Dorsal and ventral margins of the dactyli bear numerous short setae, most abundantly along the dorsal edge. The propodus is about two and a half times the length of the dactylus and is unarmed. It is also setose along dorsal and ventral margins, especially disto-ventrally.

The carpus is about half the length of the propodus and is also unarmed, but only feebly setose. The merus is slightly shorter than the propodus and about one and a half times the length of the ischium, which is setose ventrally.

The third thoracic sternite forms a transverse arc-shaped ridge. The fourth sternite is unarmed. The fifth sternite bears a pair of transverse laminae separated by a deep median notch. The sixth to eighth sternites are broad, rather swollen and unarmed.

The pleopods are normally developed. The endopod of the first pleopod is reduced, narrow, tapering generally but slightly expanded distally. The proximal

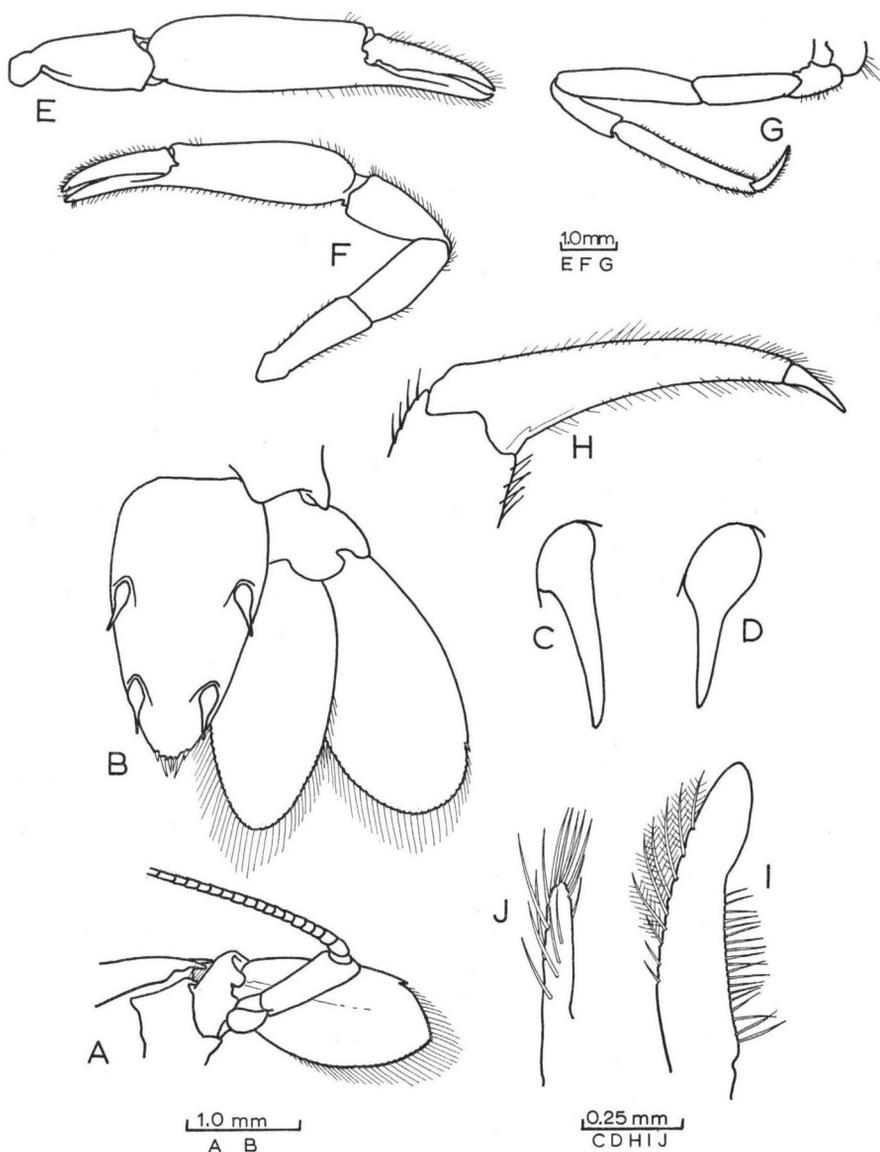


Fig. 3. *Platypontonia brevisrostris* (Miers), appendages. A, antenna; B, telson and uropod; C, anterior left dorsal telson spine; D, posterior left dorsal telson spine; E, major second pereiopod; F, minor second pereiopod; G, third pereiopod; H, dactyl of third pereiopod; I, endopod of first pleopod; J, appendix masculina of second pleopod. A, J, I, male holotype; B-H, female allotype.

two-thirds of the medial border bears numerous short stiff setae. The lateral border bears two short spines basally with six short plumose setae distally. The second pleopod bears a well developed appendix masculina on the endopod. This appendage, which is slightly shorter than the appendix interna, bears several long

slender spines along its ventral, medial and terminal aspects. Appendices internae are also present on the third to fifth pleopods. The uropods distinctly exceed the tip of the telson and are broadly rounded, subequal. The basal segment is laterally blunt. The lateral border of the exopod is convex and bears a small mobile spinule distally. The other margins of the rami bear long plumose setae.

Description of female. — The body of the female, which has been badly damaged, appears to have been, in general, similar to that of the male but is distinctly larger and more strongly depressed. The whole of the anterior part of the carapace is missing. Of the thoracic appendages, only the left third pereopod is still attached. Most of the mouthparts are also missing.

The abdomen is similar to that of the male but more tumid. The telson is also of similar shape to that of the male, and nearly twice as long as wide. The dorsal spines are situated at about two-fifths and four-fifths of the telson length from the anterior margin. They arise from deep submarginal pits and are freely mobile. The spines are equal to about one fifth of the telson length and consist of a swollen globular base with a straight slender tapering distal portion. The terminal spines are similar to those of the male and the intermediate spines are less than half the length of the dorsal spines.

The second pereopods are preserved. They are subequal and similar. The chela is smooth with subcylindrical palm, tapering slightly distally and about one and a half times the length of the fingers. The fingers are slender, tapering, with small hooked tips. The dactyl bears a single small triangular tooth with small adjacent notches, on the proximal third of the cutting edge. The distal two thirds of the cutting edge is entire. The fixed finger bears on its proximal third two small teeth, separated by a notch into which the dactylar tooth will fit. The distal two thirds of the cutting edge is also entire. Both cutting edges lie along the lateral aspects of the fingers. The chelae bear numerous long slender setae, especially along the upper and lower margins of the fingers. The carpus has about half the length of the palm and is unarmed. It is narrow proximally and expanded distally. The disto-lateral margin of the carpus bears numerous long setae. The merus and ischium are unarmed and each is subequal to the length of the carpus. The ambulatory pereopods are similar to those of the male. The sternites of the last three thoracic segments are broad and unarmed. The pleopods are elongated and biramous. The endopod of the first pleopod is reduced, and narrowed, having about half the length of the exopod. The second to fifth pleopods bear long slender appendices internae, the median borders of which bear slender spines. The uropods are similar to those of the male. The ova are numerous and small.

Size. — The post-orbital carapace length of the male is 4.0 mm and that of the female is estimated to have been 5.0 mm.

Colouration. — Live, no data. In spirit, reddish-yellow (Miers).

Host. — Uncertain.

Distribution. — Seychelles. 12 fms.

## DISCUSSION

The original description of Miers figured the anterior carapace, with its appendages, of the male specimen, together with the endopod of the third maxilliped, first and second pereopods, an ambulatory pereopod and the caudal fan. The re-examination of his material shows that his description and figures are correct except for a few small details. Fortunately the first pereopod was illustrated as no examples of this limb have been preserved. The appendage was slender and generally setose. The chela appears to have been slightly longer than the carpus, with slender fingers subequal in length to the palm. The merus seems to have been a little longer than the chela and about twice the length of the ischium.

The host for *Platypontonia brevirostris* cannot be determined with certainty. Miers reported that the specimens were originally obtained from "clamp shells" and this has been assumed to be a corruption of "clam shells". The examination of the specimen register in the British Museum (Natural History) does not yield any further information on the origin of the specimens but what appears to be the original label is still preserved with the specimens. On this manuscript label the words "clamp shells" could equally well be read as "lamp shells", the "c" being merely an initial flourish of the "l". "Lamp shells" is a commonly used vernacular name for the Brachiopoda and as shrimps of the subfamily Pontoniinae have been found in commensal association with the larger members of most invertebrate phyla, the possibility of *Platypontonia brevirostris* being associated with a brachiopod cannot be excluded. The depressed body form of the shrimps suggests an association with a strongly flattened host, a facies assumed by several of the shallow water lamp shells. However, it will not be possible to identify the host with certainty until further specimens are obtained.

The only other species of Indo-Pacific pontoniid shrimps so far described as associated with lamellibranchs belong to the genera *Anchistus* Borradaile, 1898, *Conchodytes* Peters, 1852, and *Paranchistus* Holthuis, 1952. Both *Anchistus* and *Paranchistus* can be readily distinguished from *Platypontonia* by the presence of a well developed bi-laterally compressed rostrum, generally provided with small teeth. *Conchodytes* may also be easily distinguished by the presence of distinct basal protuberances on the dactyli of the ambulatory pereopods.

In its morphological features *Platypontonia* shows the closest resemblance to the genus *Pontonia* Latreille, 1829. The Indo-Pacific species of this genus so far described all occur in association with ascidians but some of the species found in European, West African and American waters are known to occur in lamellibranch molluscs. *Pontonia* also shares many morphological characteristics with the coral-inhabiting genus *Platycaris* Holthuis, 1952, and in many respects the genus *Platypontonia* is intermediate between the two. The more important differences between the three genera are summarized in the following table.

In *Platypontonia* some morphological features are of particular interest. The mandible is unusual amongst pontoniid shrimps although some approach to the

	<i>Pontonia</i> Latreille	<i>Platypontonia</i> gen. nov.	<i>Platycaris</i> Holthuis
General body form	Not depressed	Depressed	Strongly depressed
Rostrum	Elongated, compressed, often with teeth	Very short, dorso-ventrally flattened, toothless	Short, dorso-ventrally flattened, toothless
Antennal spine	Present	Present	Absent
Endites of maxilla	Elongated, bifid	Elongated, simple	Absent
Arthrobranch on third maxilliped	Absent	Present	Present
Second pereiopods	Large, unequal, dissimilar	Small, subequal similar	Large, subequal, similar
Dactyls of ambulatory legs	Complex, with accessory spines	Simple, slender	Simple, robust
Dorsal telson spines	Very large	Large	Small
Indo-Pacific host animal	Ascidians	Lamellibranch mollusc or ?brachiopod	Oculinid corals

condition found in *Platypontonia* also occurs in the genera *Periclimenes* Costa and *Pontonia* Latreille, in which the species *P. indicus* (Kemp) and *P. okai* Kubo respectively have a few small denticles along the distal part of the sharp medial edge of the incisor process. In none of these, however, does the cutting edge extend along the anterior aspect of the molar process. Also noteworthy is the sexual dimorphism of the dorsal spines of the telson. These are normal in the male but have an enlarged swollen globular basal portion in the female. There is normally no sexual dimorphism in the telson spines of pontoniid shrimps.

#### RÉSUMÉ

Les spécimens décrits par Miers (1884) comme *Pontonia? brevisrostris* maintenant dans les collections du British Museum, ont été réexaminés. Ces spécimens ne peuvent être rapportés au genre *Pontonia* Latreille et un nouveau genre *Platypontonia* a été établi pour eux. L'identité de l'hôte est discutée. Les caractères qui séparent *Platypontonia* des autres genres indo-pacifiques connus comme vivant dans des Mollusques bivalves sont donnés et les différences entre le nouveau genre, et *Pontonia* et *Platycaris* Holthuis, auxquels il ressemble morphologiquement, sont exposées sous la forme d'un tableau.

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