

COPEPODS ASSOCIATED WITH THE SCLERACTINIAN CORAL *PORITES* IN FRENCH POLYNESIA

by

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Résumé

L'auteur décrit deux espèces nouvelles de Copépodes (Poecilostomatoida) qui s'associent au corail *Porites* à Moorea, Polynésie française: *Kombia incrassata* n. sp. (Pseudanthessiidae) et *Monomolgus torulus* n. sp. (Lichomolgidae), tous les deux associées à *Porites lobata*, *Porites lutea*, et *Porites stephensoni*.

Introduction

Many species of cyclopoid copepods are associated with Scleractinia in shallow tropical seas. Some of these copepods are much modified in body form and appendages, but others show little modification. Approximately 100 such copepods were listed by Humes (1979). Since then many more of these associates have been described (e.g., Humes and Dojiri, 1982, 1983; Humes, in press a, b; Misaki, 1978), bringing the number of copepod-coral associations to more than 150. In addition, three harpacticoid copepods live in association with scleractinians (Marcus and Masry, 1970; Humes, 1981a, b).

No associations of copepods with corals have so far been reported in the vast area of the tropical Pacific Ocean between 170°E and the west coast of Central and South America. An opportunity to collect copepods in this region was afforded by a brief visit in 1982 to the Centre de l'Environnement de Moorea in French Polynesia.

Methods of collection and study

The copepods were collected according to the method outlined by Humes (1979). Measurements and dissections were made on specimens cleared in lactic acid.

The figures were drawn with the aid of a camera lucida. The letter after the explanation of each figure refers to the scale at which

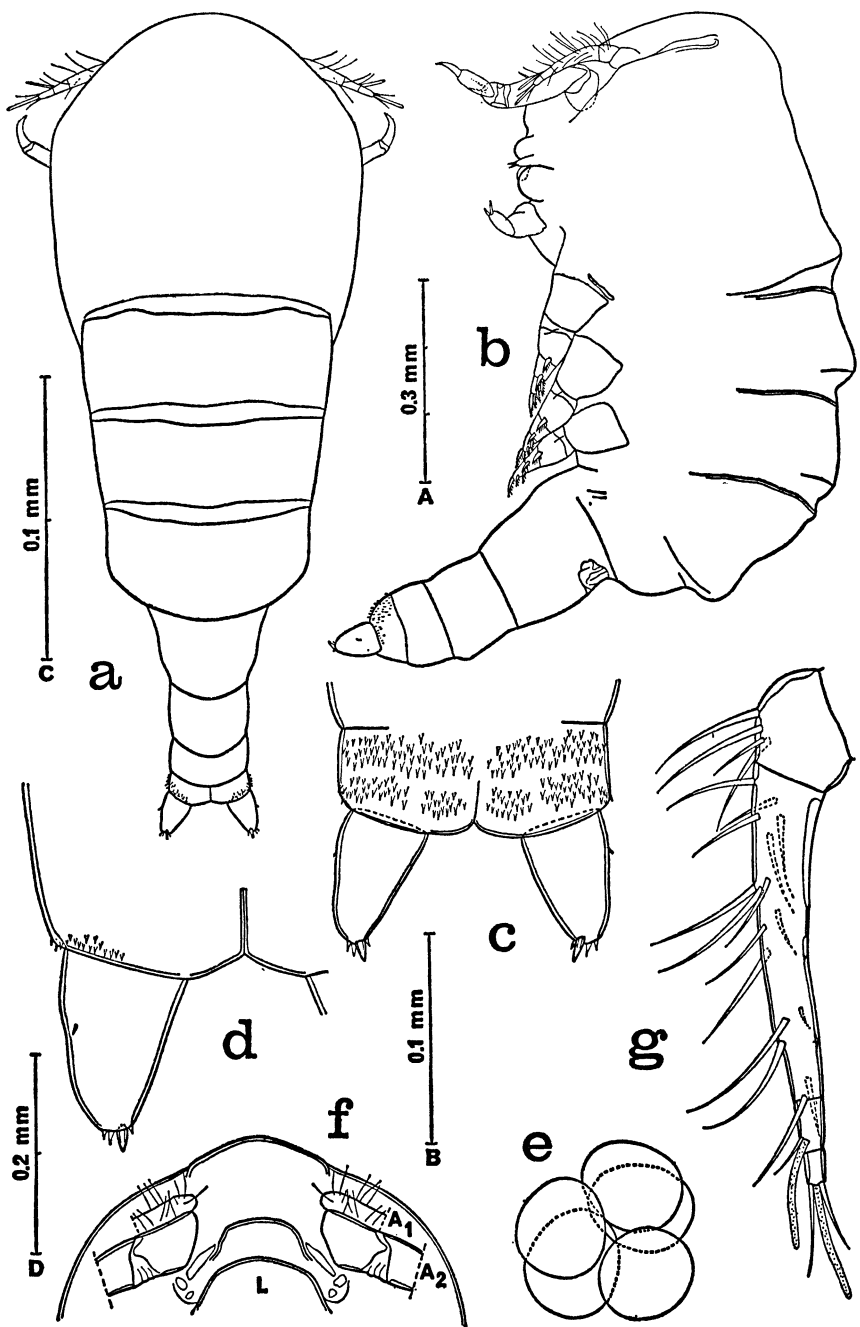


FIG. 1

Kambia incrassata n. sp., female

a, dorsal (scale A); b, lateral (A); c, anal segment and caudal rami, ventral (B); d, caudal ramus, dorsal (C); e, egg sac, lateral (A); f, rostral area, ventral (D); g, first antenna, posteroventral (C).

it was drawn. The abbreviations used are: A_1 = first antenna, A_2 = second antenna, L = labrum, P_{1-4} = legs 1-4, SP_5 = segment of leg 5, and GS = genital segment.

Descriptions

PSEUDANTHESSIIDAE Humes and Stock, 1972

KOMBIA Humes, 1962

Kombia incrassata n. sp.

Figs. 1a-g, 2a-k, 3a-h

Type material.— 16 ♀♀, 17 ♂♂, and 3 copepodids from *Porites lobata* Dana, in 15cm, Pte. Faaupo, northeastern Moorea, Society Islands, 19 October 1982. Holotype ♀, allotype, and 26 paratypes (12 ♀♀, 14 ♂♂) deposited in the National Museum of Natural History, Smithsonian Institution, Washington, D.C.; the remaining paratypes in the collection of the author.

Other specimens.— From *Porites lobata*: 5 ♀♀, 7 ♂♂, in 20cm, south of Ilot Irioa, northwestern Moorea, 19 October 1982; 2 copepodids, same locality and date. From *Porites lutea* Milne Edwards and Haime: 14 ♀♀, 12 ♂♂, in 20cm, Ilot Irioa, northwestern Moorea, 14 October 1982; 1 ♀, 4 ♂♂, in 5cm, Pte. Faaupo, northeastern Moorea, 20 October 1982; 1 ♀, 2 ♂♂, 1 copepodid, in 20cm, Pte. Faretiare, northwestern Moorea, 20 October 1982. From *Porites stephensoni* Crossland: 1 ♀, in 12cm, between Ilot Tiahura and Ilot Irioa, northwestern Moorea, 18 October 1982.

Female.— Body (Fig. 1a, b) with stout prosome. Length (not including setae on caudal rami) 1.05mm (0.98-1.09mm) and greatest width 0.45mm (0.43-0.46mm), based on 10 specimens in lactic acid. Greatest dorsoventral thickness (0.40mm (0.40-0.43mm)). External segmentation of prosome defined more clearly dorsally than ventrally. Segment bearing leg 1 fused with cephalosome. Three postgenital segments. Anal segment with many slender spinules ventrally; these extending dorsally in smaller numbers (Fig. 1c). Caudal ramus (Fig. 1d) relatively short, $62 \times 42\mu\text{m}$ in greatest dimensions, ratio 1.48:1. Lateral seta minute. Four small terminal setae, longest $8\mu\text{m}$ and stouter than others.

Egg sac (Fig. 1e) containing 3-8 eggs in cluster, each egg 117-148 μm in diameter.

Rostral area (Fig. 1f) weakly developed. First antenna (Fig. 1g) 173 μm , 4-segmented, but slight indication of subdivision of long second segment. Lengths of segments (measured along their posterior nonsetiferous margins): 12 (32 μm along anterior margin), 101, 15, and 11 μm , respectively. Armature: 4, 16, 1 + 1 aesthete, and 2 + 1 aesthete. All setae smooth.

Second antenna (Fig. 2a) 247 μm , 4-segmented, longer than first antenna. Armature 1, 1, 2, and 1 terminal claw 55 μm .

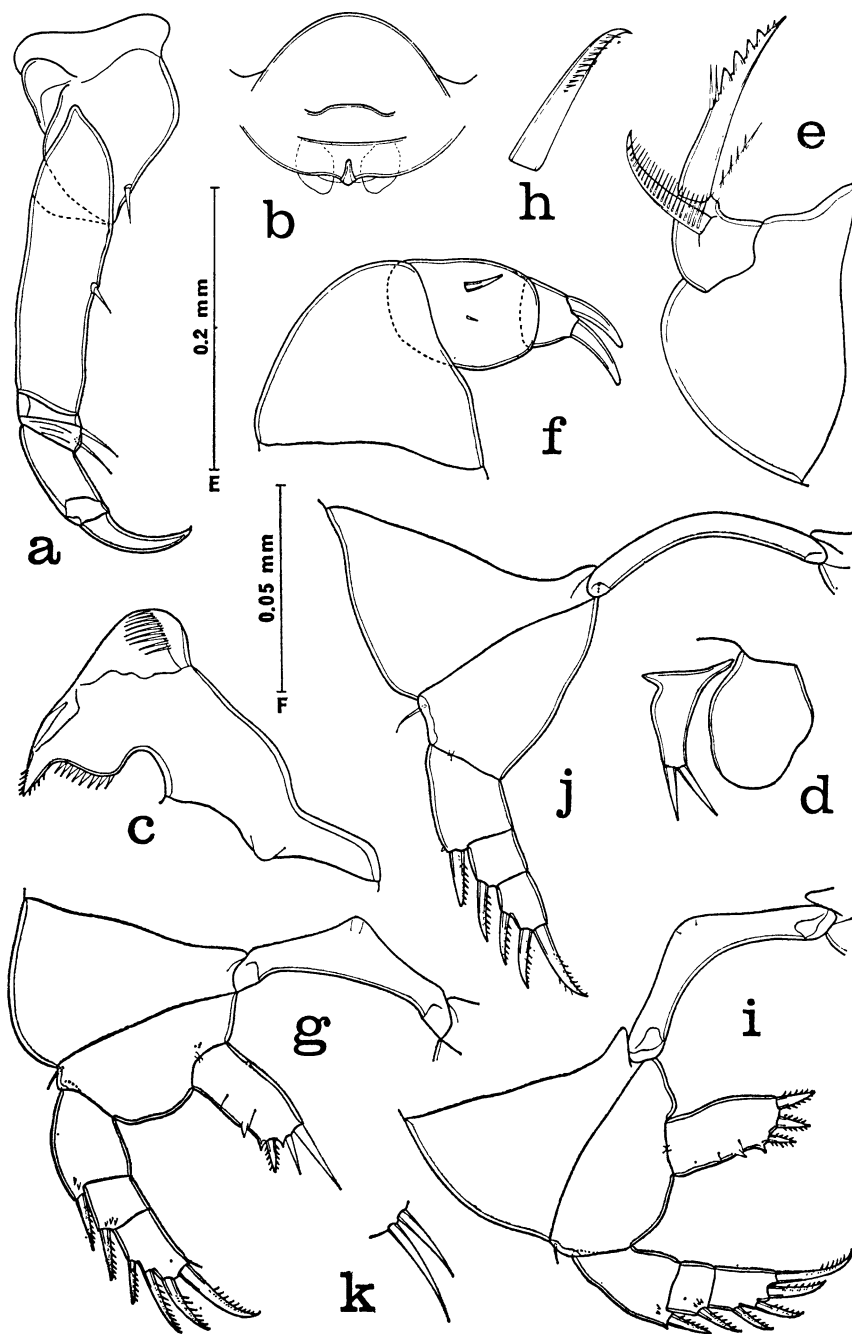


FIG. 2

Komba incrassata n. sp., female

a, second antenna, anterior (scale B); b, labrum with paragnaths, ventral (E); c, mandible, posterior (F); d, paragnath and first maxilla, ventral (C); e, second maxilla (F); f, maxilliped, antero-inner (F); g, leg 1 and intercoxal plate, anterior (B); h, terminal spine on exopod of leg 1, posterior (F); i, leg 2 and intercoxal plate, anterior (B); j, leg 3 and intercoxal plate, anterior (B); k, leg 5, lateral (F).

Labrum (Fig. 2b) with small median process on posteroventral margin. Mandible (Fig. 2c) resembling that of *Kombia angulata* Humes, 1962, and *K. imminens* Humes, 1979. Paragnath (Fig. 2d) unusually large, about $47 \times 34\mu\text{m}$, and smooth. First maxilla (Fig. 2d) with 2 setae. Second maxilla (Fig. 2e) 2-segmented. First segment unarmed. Second segment with 2 setae, one with comb of long setules, and terminal spine bearing 2 setules and row of several dentiform spines. Maxilliped (Fig. 2f) 3-segmented. First segment unarmed. Second segment with 2 unequal setae. Small third segment with 2 blunt terminal spines.

Legs 1 and 2 (Fig. 2g, i) biramous, leg 3 (Fig. 2j) without endopod, and leg 4 absent. Spine and setal formula as follows (Roman numeral indicating spines, Arabic numerals representing setae):

- P_1 coxa 0-0 basis 1-0 exp I-0; I-0; IV,1
enp I,2
 P_2 coxa 0-0 basis 1-0 exp I-0; I-0; IV
enp III
 P_3 coxa 0-0 basis 1-0 exp I-0; I-0; III
enp absent
 P_4 absent

Spines on exopods of legs 1-3 pectinate posteriorly as in Fig. 2h. Leg 1 with third segment of exopod having small terminal inner seta in addition to 4 spines. Endopod of leg 1 with slight indication of subdivision into 3 segments; its terminal setae smooth. Leg 2 with endopod having similar indication of 3 segments; 3 spines bilaterally with short spinules. Leg 3 showing no trace of endopod.

Leg 5 (Fig. 2k) consisting only of 2 naked setae $26\mu\text{m}$ and $16\mu\text{m}$.

Color in life in transmitted light pale gray, eye red, egg sacs dark gray.

Male.— Body (Fig. 3a, b) with posterior part of prosome less stout than in female. Length 0.98mm ($0.90\text{--}1.06\text{mm}$) and greatest width 0.43mm ($0.41\text{--}0.46\text{mm}$), based on 10 specimens in lactic acid. Greatest dorsoventral thickness 0.37mm ($0.31\text{--}0.42\text{mm}$). Four postgenital segments. Anal segment with slender spinules as in female. Caudal ramus $58 \times 36\mu\text{m}$, ratio 1.6:1; otherwise similar to that of female.

Rostral area as in female. First antenna (Fig. 3c) $217\mu\text{m}$, 5-segmented. Lengths of segments (measured along their posterior non-setiferous margins: 28 ($34\mu\text{m}$ along anterior margin), 107, 31, 31, and $34\mu\text{m}$, respectively. Armature: 4, 14 + 2 aesthetes, 2 + 1 aesthete, 1 + aesthete, and 3 + 2 aesthetes. All aesthetes long, more than half length of first antenna.

Second antenna, labrum, mandible, paragnath, first maxilla, and second maxilla like those of female. Maxilliped (Fig. 3d) 3-segmented (4-segmented if proximal part of claw is considered as segment). First segment unarmed. Second segment with prominent spurlike process and 1 seta on inner edge. Small third segment unarmed. Claw $96\mu\text{m}$, with unequal proximal setae, and having minute rugosities on distal concave margin.

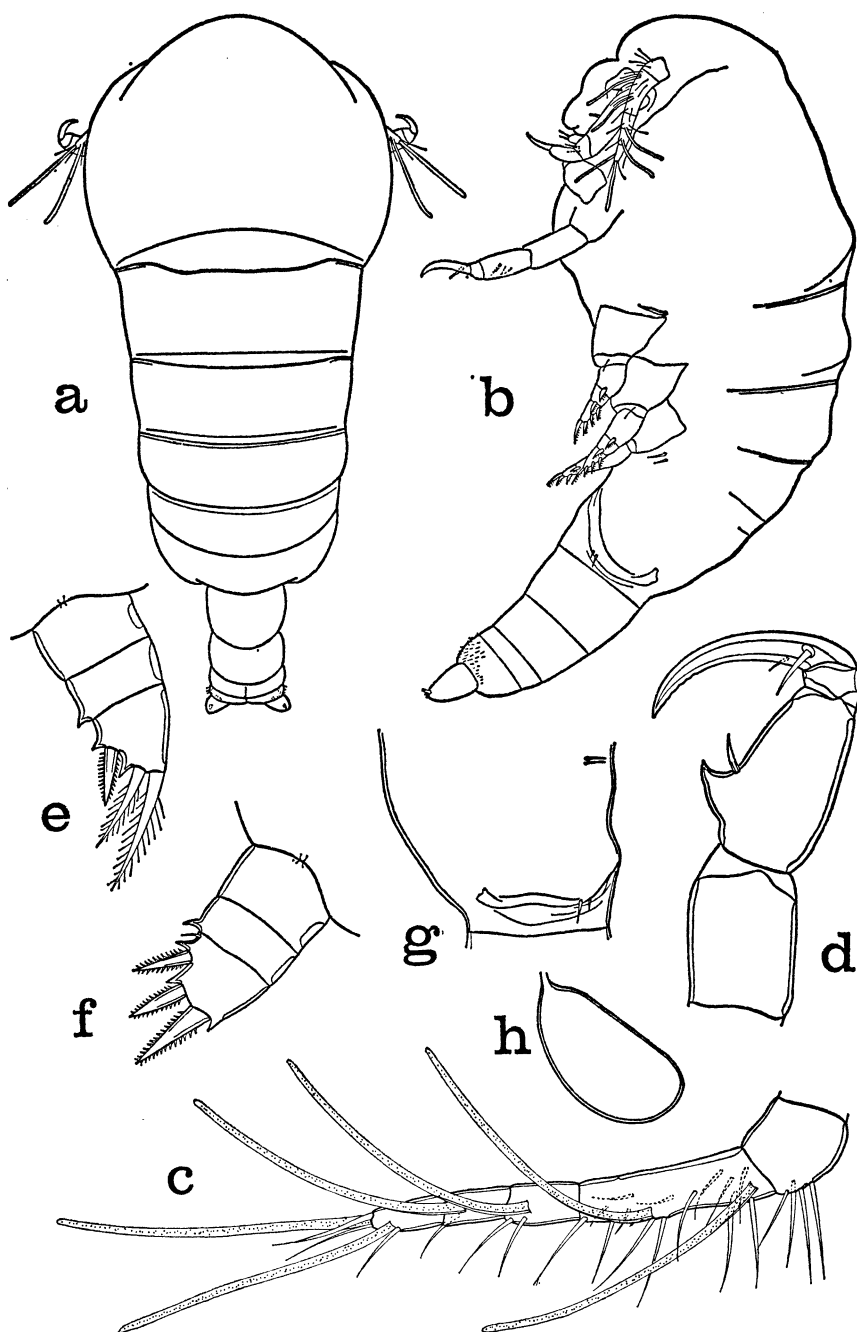


FIG. 3

Komba incrassata n. sp., male

a, dorsal (scale A); b, lateral (A); c, first antenna, posteroventral (B); d, maxilliped, inner (B); e, endopod of leg 1, anterior (C); f, endopod of leg 2, anterior (C); g, leg 5 and leg 6, lateral (D); h, spermatophore, inside body of male, lateral (A).

Legs 1-4 similar to those of female except for endopods of legs 1 and 2 being 3-segmented. Endopod of leg 1 (Fig. 3e) with 2 terminal setae feathered, instead of being smooth as in female. Endopod of leg 2 (Fig. 3f) with small outer setule proximal to spiniform process on third segment. Leg 4 absent.

Leg 5 (Fig. 3g) as in female.

Leg 6 (Fig. 3g) represented by posteroventral flap on genital segment bearing 2 small setae $20\mu\text{m}$ and $7\mu\text{m}$.

Spermatophore (Fig. 3h), seen only inside body of male, oval, $242 \times 121\mu\text{m}$.

Color as in female.

Etymology.— The specific name *incrassata*, Latin meaning thickened, alludes to the stout prosome.

Remarks.— The salient differences among the three species of *Kombia* are shown in Table 1. Variability of certain characters in the genus has already been pointed out by Humes (1962) and Humes and Stock (1973). The 3-segmented nature (indicative in the female but real in the male) of the endopods of legs 1 and 2 in *Kombia incrassata* differs from the 2-segmented endopods of the two previously described species. It seems preferable, however, to include the new species in *Kombia* for the time being, since most features conform to the generic concept.

TABLE 1
Salient differences among the three species of *Kombia*.

| <i>K. angulata</i> Humes, 1962 <i>K. imminens</i> Humes, 1979 <i>K. incrassata</i> n. sp. | | | |
|---|---------------------------------|---|--|
| Female | | | |
| Length | 1.40mm (1.28-1.48 mm) | 1.32mm | 1.05mm (0.98-1.09mm) |
| Tergum of segment of leg 4 | not produced | produced to overhang anterior part of urosome | not produced |
| Caudal ramus | $60 \times 31\mu\text{m}$, 2:1 | $126 \times 39\mu\text{m}$, 3.2:1 | $62 \times 42\mu\text{m}$, 1.48:1 |
| Terminal armature P_1 Enp | II,1 | II,1 | I,2 |
| Segmentation of P_{1+2} Enp | 2-segmented | 2-segmented | slight indication of 3 segments |
| Male | | | |
| Length | 0.97mm (0.93-1.02 mm) | 0.74mm (0.72-0.77mm) | 0.98mm (0.90-1.06mm) |
| Claw of maxilliped | angulate | swollen proximally, $19\mu\text{m}$ | typical clawlike form, $96\mu\text{m}$ |
| Segmentation of P_{1+2} Enp | 2-segmented | 2-segmented | 3-segmented |

Species of *Kombia* parasitize coral genera belonging to two families, Thamnasteriidae (*Psammocora*) and Poritidae (*Porites*). The host corals and localities are shown in Table 2.

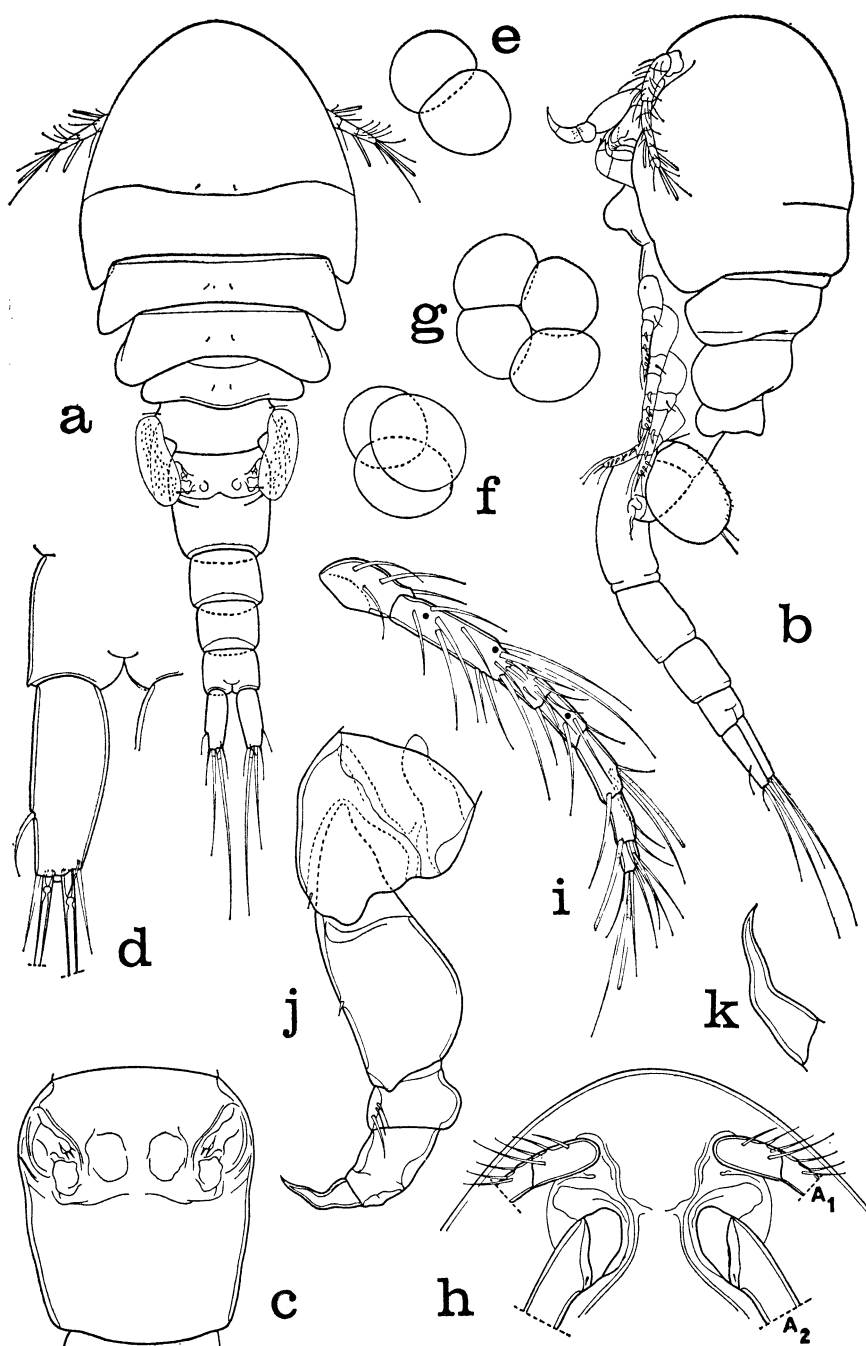


FIG. 4

Monomolgus torulus n. sp., female

a, dorsal (scale A); b, lateral (A); c, genital segment, dorsal (E); d, caudal ramus, dorsal (B); e, egg sac, lateral (A); f, egg sac, lateral (A); g, egg sac, lateral (A); h, rostral area, ventral (E); i, first antenna, dorsal (B); j, second antenna, postero-inner (C); k, claw of second antenna, flat view, postero-inner (F).

TABLE 2
Coral hosts, localities, and sources for the three species of *Kombia*.

| | | |
|--|------------|-----------------------|
| <i>Kombia angulata</i> Humes, 1962 | | |
| <i>Psammocora</i> sp. | Madagascar | Humes, 1962 |
| <i>Porites</i> (<i>Synaraea</i>) sp. | Madagascar | Humes and Ho, 1968 |
| <i>Porites</i> sp. cf. <i>P. nigrescens</i> Dana | Madagascar | Humes and Ho, 1968 |
| <i>Porites</i> , young colony | Madagascar | Humes and Ho, 1968 |
| <i>Porites</i> sp. | Madagascar | Humes and Stock, 1973 |
| <i>Porites somaliensis</i> Gravier | Mauritius | Humes and Stock, 1973 |
| <i>Kombia imminens</i> Humes, 1979 | | |
| <i>Porites</i> (<i>Synaraea</i>) <i>monticulosa</i> (Dana) | Ceram | Humes, 1979 |
| <i>Kombia incrassata</i> n. sp. | | |
| <i>Porites lobata</i> | Moorea | present paper |
| <i>Porites lutea</i> Milne Edwards and Haime | Moorea | present paper |
| <i>Porites stephensoni</i> Crossland | Moorea | present paper |

LICHOMOLGIDAE Kossmann, 1877

MONOMOLGUS Humes and Frost, 1964

Monomolgus torulus n. sp.

Figs. 4 a-k, 5 a-i, 6 a-i

Type material.— 143 ♀♀, 177 ♂♂, and 146 copepodids from *Porites lobata* Dana, in 15cm, Pte. Faaupo, northeastern Moorea, Society Islands, 19 October 1982. Holotype ♀, allotype, and 210 paratypes (137 ♀♀, 173 ♂♂) deposited in the National Museum of Natural History, Smithsonian Institution, Washington, D.C.; the remaining paratypes (dissected) and the copepodids in the author's collection.

Other specimens.— From *Porites lobata*: 8 ♀♀, 6 ♂♂, in 12cm, between Ilot Tiahura and Ilot Irioa, northwestern Moorea, 15 October 1982; 3 ♀♀, 1 ♂, 2 copepodids in 20cm, south of Ilot Irioa, northwestern Moorea, 14 October 1982; 15 ♀♀, 6 ♂♂, 3 copepodids, same locality, 19 October 1982; 5 ♀♀, 1 ♂, 1 copepodid, same locality and date. From *Porites lutea* Milne Edwards and Haime: 10 ♀♀, 11 ♂♂, in 20cm, Ilot Irioa, northwestern Moorea, 14 October 1982; 19 ♀♀, 6 ♂♂, 3 copepodids, in 12cm, between Ilot Tiahura and Ilot Irioa, northwestern Moorea, 15 October 1982; 2 ♀♀, 5 ♂♂, in 20cm, Pte. Faretiare, northwestern Moorea, 20 October 1983. From *Porites stephensoni* Crossland: 6 ♀♀, 1 ♂, in 12cm, between Ilot Tiahura and Ilot Irioa, northwestern Moorea, 18 October 1982.

Female.— Body (Fig. 4a, b) with moderately slender urosome. Length (not including setae on caudal rami) 1.05mm (1.00-1.14mm) and greatest width 0.38mm (0.36-0.40mm), based on 10 specimens in lactic acid. Ratio of length to width of prosome 1.41:1. Ratio of length of prosome to that of urosome 1.14:1.

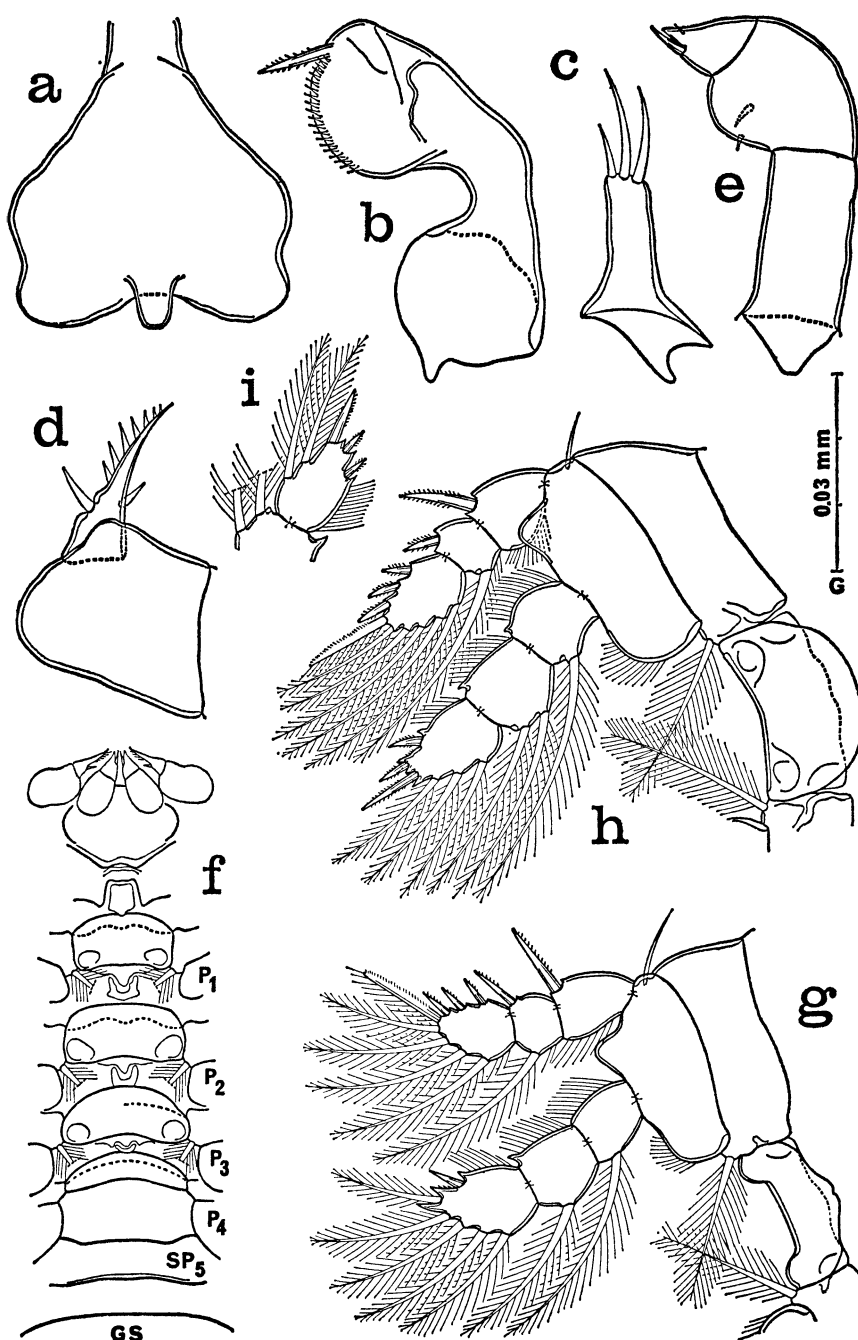


FIG. 5

Monomolgus torulus n. sp., female

a, labrum, ventral (scale C); b, mandible, posterior (G); c, first maxilla, posterior (C); d, second maxilla, antero-inner (F); e, maxilliped, postero-outer (F); f, midregion of prosome, ventral (E); g, leg 1 and intercoxal plate, anterior (B); h, leg 2 and intercoxal plate, anterior (B); i, third segment of endopod of leg 3, anterior (B).

Segment of leg 5 $78 \times 174 \mu\text{m}$. Genital segment in dorsal view (Fig. 4c) $169 \times 153 \mu\text{m}$, slightly longer than wide, slender in lateral view (Fig. 4b). Genital areas situated dorsolaterally in anterior half of segment. Each area with 2 minute setae about $6 \mu\text{m}$. Three post-genital segments from anterior to posterior 83×99 , 70×83 , and $55 \times 78 \mu\text{m}$.

Caudal ramus (Fig. 4d) elongate, $91 \times 34 \mu\text{m}$, ratio 2.68:1. Outer lateral seta $30 \mu\text{m}$. Dorsal seta very small, $10 \mu\text{m}$. Outermost terminal seta $31 \mu\text{m}$, innermost terminal seta $33 \mu\text{m}$, and 2 medial terminal setae $130 \mu\text{m}$ (outer) and $220 \mu\text{m}$ (inner), both inserted between slight dorsal and ventral flanges, ventral flange with marginal row of minute spinules. All setae naked.

Egg sac (Fig. 4e-g) containing 2-4 eggs, eggs $112\text{--}153 \mu\text{m}$, irregular in shape.

Rostrum (Fig. 4h) weak. First antenna (Fig. 4i) $205 \mu\text{m}$ long, with lengths of seven segments (measured along their posterior nonsetiferous margins) as follows: 10 ($46 \mu\text{m}$ along anterior margin), 64, 22, 24, 28, 23, and $12 \mu\text{m}$, respectively. Armature: 4, 13, 6, 3, 4+1 aesthete, 2+1 aesthete, and 7+1 aesthete. All setae smooth.

Second antenna (Fig. 4j) $156 \mu\text{m}$. Third segment with prominent outer bulge. Fourth segment $36 \mu\text{m}$ along outer edge, $31 \mu\text{m}$ along inner edge, and $21 \mu\text{m}$ wide. Formula: 1, 1, 3, and 1 sinuous terminal claw $38 \mu\text{m}$ (Fig. 4k).

Labrum (Fig. 5a) with 2 broadly rounded posteroventral lobes and 1 prominent small median lobe. Mandible (Fig. 5b) resembling that of *M. unihastatus* Humes and Frost, 1964. Paragnath a minute rounded lobe. First maxilla (Fig. 5c) with 3 setae. Second maxilla (Fig. 5d) with first segment gibbous and unarmed. Second segment with 2 smooth setae and lash with several prominent unilateral spines. Maxilliped (Fig. 5e) similar to that of *M. baculigerus* Humes, 1979.

Ventral area posterior to maxillipeds (Fig. 5f) strongly protuberant (Fig. 4b). Sclerites anterior to intercoxal plates of legs 1-4 as in Fig. 4f.

Legs 1-4 (Figs. 5g, h, i, 6a) with 3-segmented rami except for 2-segmented endopod of leg 4. Formula for armature as follows (Roman numerals indicating spines, Arabic numerals representing setae):

| | | | | | |
|---------------------|-----|-------|-----|-----|-------------------|
| P ₁ coxa | 0-1 | basis | 1-0 | exp | I-0; I-1; III,I,4 |
| | | | | enp | 0-1; 0-1; I,5 |
| P ₂ coxa | 0-1 | basis | 1-0 | exp | I-0; I-1; III,I,5 |
| | | | | enp | 0-1; 0-2; I,II,3 |
| P ₃ coxa | 0-1 | basis | 1-0 | exp | I-0; I-1; III,I,5 |
| | | | | enp | 0-1; 0-2; I,II,2 |
| P ₄ coxa | 0-0 | basis | 1-0 | exp | I-0; I-1; III,I,5 |
| | | | | enp | 0-0; I |

Inner margin of coxa with feathered seta in legs 1-3, but unarmed in leg 4. Inner margin of basis in all 4 legs haired. First and second segments of exopod of leg 1 with lengths of spines $35 \mu\text{m}$ and $22 \mu\text{m}$, respectively; these spines in leg 2 $35 \mu\text{m}$ and $16 \mu\text{m}$. Leg 4 with

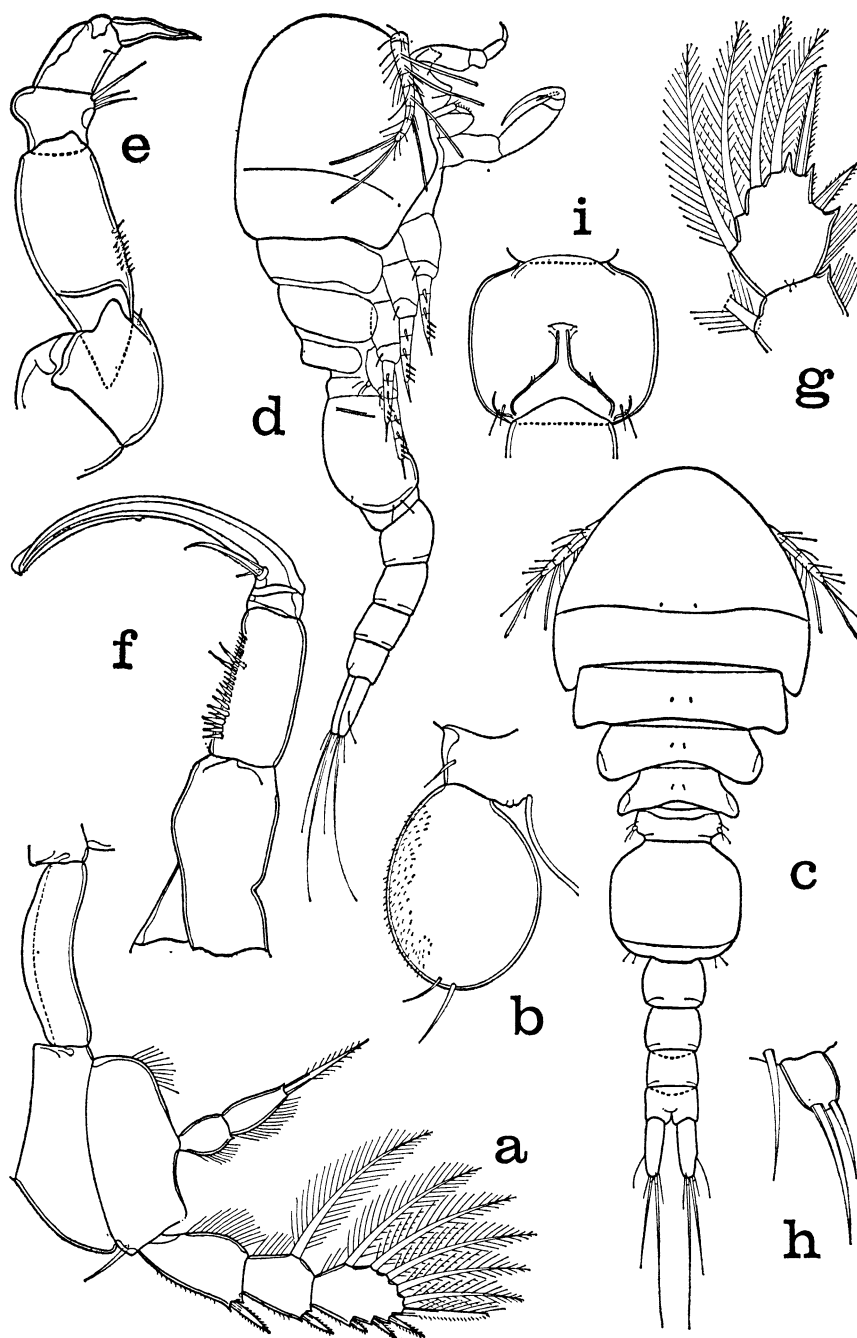


FIG. 6

Monomolgus torulus n. sp., female

a, leg 4 and intercoxal plate, anterior (scale B); b, leg 5, flat view, dorsal (E).

Monomolgus torulus n. sp., male

c, dorsal (A); d, lateral (A); e, second antenna, antero-outer (C); f, maxilliped, inner (B); g, third segment of endopod of leg 1, anterior (C); h, leg 5, dorsal (G); i, genital segment with leg 6, ventral (D).

exopod 127 μ m long. Endopod with first segment 26 \times 18 μ m; second segment 32 \times 15 μ m and terminal barbed spine 47 μ m. Outer sides of both segments of endopod haired.

Leg 5 (Fig. 6b) with oval free segment, 143 \times 104 μ m, with very small spinules on its outer surface and bearing 2 small terminal setae 39 μ m and 21 μ m. Dorsal seta near insertion of free segment short, 14 μ m. Free segment somewhat concave (Fig. 4a) and held lateral to egg sacs.

Leg 6 represented by 2 small setae on genital area (Fig. 4c).

Color of living specimens in transmitted light pale gray, eye red, egg sacs dark gray.

Male.— Body (Fig. 6c, d) with prosome more pointed anteriorly than in female. Length 0.97mm (0.95-0.99mm) and greatest width 0.33mm (0.33-0.35mm), based on 10 specimens in lactic acid. Ratio of length to width of prosome 1.36:1. Ratio of length of prosome to that of urosome 0.96:1.

Segment of leg 5 (Fig. 6c) 44 \times 117 μ m. Genital segment a little wider than long, 156 \times 180 μ m. Four postgenital segments from anterior to posterior 62 \times 83, 61 \times 74, 55 \times 68, and 51 \times 70 μ m.

Caudal ramus similar to that of female, 91 \times 29 μ m, ratio 3.14:1.

Rostral area like that of female. First antenna segmented and armed as in female, but 3 aesthetes added (at points indicated by dots in Fig. 4i), so that formula is 4, 13+2 aesthetes, 6, 3+1 aesthete, 4+1 aesthete, 2+1 aesthete, and 7+1 aesthete. All aesthetes much longer than in female, longest (175 μ m) nearly as long as first antenna (198 μ m). Second antenna (Fig. 6e) like that of female, but second segment having 2 inner rows of spinules proximal to seta.

Labrum, mandible, paragnath, first maxilla, and second maxilla as in female. Maxilliped (Fig. 6f) slender, resembling that of *M. uni-hastatus* and *M. baculigerus*. Claw 138 μ m along its axis including terminal lamella.

Legs 1-4 segmented as in female and with similar armature except for third segment of endopod of leg 1 (Fig. 6g) where formula is I,I,4; lengths of these spines 21 μ m and 42 μ m, respectively.

Leg 5 (Fig. 6h) with very small free segment, 7 \times 6 μ m.

Leg 6 (Fig. 6i) a posteroventral flap on genital segment bearing 2 slender naked setae 22 μ m and 17 μ m.

Spermatophore not seen.

Color of living specimens as in female.

Etymology.— The specific name *torulus*, Latin meaning a little round bulge, alludes to the prominent outer bulge on the third segment of the second antenna.

Remarks.— Four characters of *Monomolgus torulus* serve to distinguish the new species from its three congeners (*M. uni-hastatus* Humes and Frost, 1964, *M. psammocorae* Humes and Ho, 1967, and *M. baculigerus* Humes, 1979): (1) the outer bulge on the third segment of the

second antenna, (2) the median lobe on the labrum, (3) the broad oval free segment of leg 5 in the female, and (4) the genital segment of the female being slightly longer than wide rather than wider than long.

The four species of *Monomolgus* may be separated from each other by means of the selected characters in Table 3.

TABLE 3
Comparison of selected characters of the four species of *Monomolgus*.

| | <i>M. unihastatus</i> Humes and Frost, 1964 | <i>M. psammocorae</i> Humes and Ho, 1967 | <i>M. baculigerus</i> Humes, 1979 | <i>M. torulus</i> n. sp. |
|--------------------------------|---|--|--------------------------------------|-----------------------------|
| Female | | | | |
| Length (in mm) | 1.30 (1.25-1.34) | 1.25 (1.21-1.29) | 0.91 (0.85-0.98) | 1.05 (1.00-1.14) |
| A ₂ 3rd segment | no bulge | no bulge | no bulge | outer bulge |
| Labrum, median lobe | absent | absent | absent | present |
| First maxilla | 2, perhaps 3 setae | 4 setae | 2 setae | 3 setae |
| P ₄ Exp 3rd segment | III,I,5 | II,I,5 | II,I,5 | III,I,5 |
| P ₅ free segment | 170×105μm, 1.7:1 | 84×28μm, 3:1 | 120×65μm, 1.85:1 | 143×104μm, 1.38:1 |
| Caudal ramus | 153×39μm, 3.9:1 | 92×35μm, 2.63:1 | 73×29μm, 2.52:1 | 91×34μm, 2.68:1 |
| Genital segment | 160×174μm | 146×172μm | 130×120μm | 169×153μm |
| Male | | | | |
| P ₁ Enp 3rd segment | I,I,4 | I,5 | IV,2 | I,I,4 |
| P ₂ Enp 3rd segment | I,II,3 | II,I,3 | IV,2 | I,II,3 |

TABLE 4
Coral hosts, localities, and sources for the four species of *Monomolgus*.

| | | |
|---|---------------------|------------------------|
| <i>Monomolgus unihastatus</i> Humes and Frost, 1964 | | |
| <i>Porites</i> sp. cf. <i>P. andrewsi</i> Vaughan | Madagascar | Humes and Frost, 1964 |
| <i>Porites</i> sp. cf. <i>P. nigrescens</i> Dana | Madagascar | Humes and Ho, 1968 |
| <i>Porites</i> sp. | Madagascar | Humes and Stock, 1973 |
| [<i>Parerythropodium fulvum</i> (Forskål), an alcyonacean, perhaps an accidental host] | Madagascar | Humes and Stock, 1973] |
| <i>Monomolgus psammocorae</i> Humes and Ho, 1967 | | |
| <i>Psammocora contigua</i> (Esper) | Madagascar | Humes and Ho, 1967 |
| <i>Monomolgus baculigerus</i> Humes, 1979 | | |
| <i>Porites nigrescens</i> Dana | Halmahera, Moluccas | Humes, 1979 |
| <i>Monomolgus torulus</i> n. sp. | | |
| <i>Porites lobata</i> Dana | Moorea | present paper |
| <i>Porites lutea</i> Milne Edwards and Haime | Moorea | present paper |
| <i>Porites stephensoni</i> Crossland | Moorea | present paper |

Species of *Monomolgus* are associated with corals belonging to the genera *Psammocora* and *Porites* (Table 4).

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