

A NEW GENUS AND SPECIES OF BOPYRID ISOPOD  
PARASITIC ON THE WESTERN ATLANTIC PORCELLANID  
*PACHYCHELES ACKLEIANUS* A. MILNE EDWARDS

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*Abstract.*—A description is given of the pseudionine bopyrid isopod *Kolourione premordica*, new genus, new species, a branchial parasite of the porcellanid crab *Pachycheles ackleianus* A. Milne Edwards from the Gulf of Mexico, Hispaniola, St. Lucia and Curaçao. The new genus occupies an advanced position in the subfamily Pseudioninae and is highly distinctive in that the female's pleon is concave posteriorly.

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*KOLOURIONE*, new genus

*Diagnosis.*—Female: Pseudionine bopyrid. Body only slightly distorted, both dextral and sinistral forms in single species. Maxilliped with non-articulated palp. Frontal lamina and coxal plates prominent. Pleon of only 5 pleomeres, terminal one embedded in fourth, leaving posterior margin concave. Pleonal lateral plates reduced or absent. Pleopods biramous, rami lanceolate, those of pleomere 4 much reduced; no pleopods or uropods on pleomere 5. Male: Body about 3 times as long as broad, sides nearly parallel. Head, pleon and pereomeres distinct. No midventral pereonal tubercles. Pleon fused and lacking appendages.

*Etymology.*—From Greek stems meaning "cut-off tail" + generic name "*Ione*." Gender feminine.

Type-species, *Kolourione premordica*, n. sp.

*Kolourione premordica*, new species

Figs. 1, 2

"Pseudioninae sur *Pachycheles ackleyanus* A. Milne Edwards."—Bourdon, 1976:238.

*Material examined.*—Infesting *Pachycheles ackleianus* A. Milne Edwards. University of Miami ship R/V *John Elliott Pillsbury* Sta. P-1283, near Enriquillo, Dominican Republic, 17°31'N, 71°32'W, 18-26 m, 19 July 1970: 1♀, holotype, USNM 150711, 1♂, allotype, USNM 150712, 1♀, 1♂, paratypes, USNM 150713. *Pillsbury* Sta. P-895, near St. Lucia, 14°06'N, 61°01'W, 18 m, 8 July 1969: 2♀, 1♂, USNM 150714. Gulf of Mexico, D. L. Adkison, coll., 15 Oct. 1976: 5♀, 5♂, MESC. U.S. Fish Commission Steamer *Fish Hawk* Sta. 7124, off Tampa Bay, Florida, 25°50'15"N, 82°41'45"W, 38 m, 2 April 1901, dredged on sand; 1♀, 1♂, USNM 29232. From sponge *Sphaciospongia vesparia* (Lamarck), Mer Frappée, Haiti,

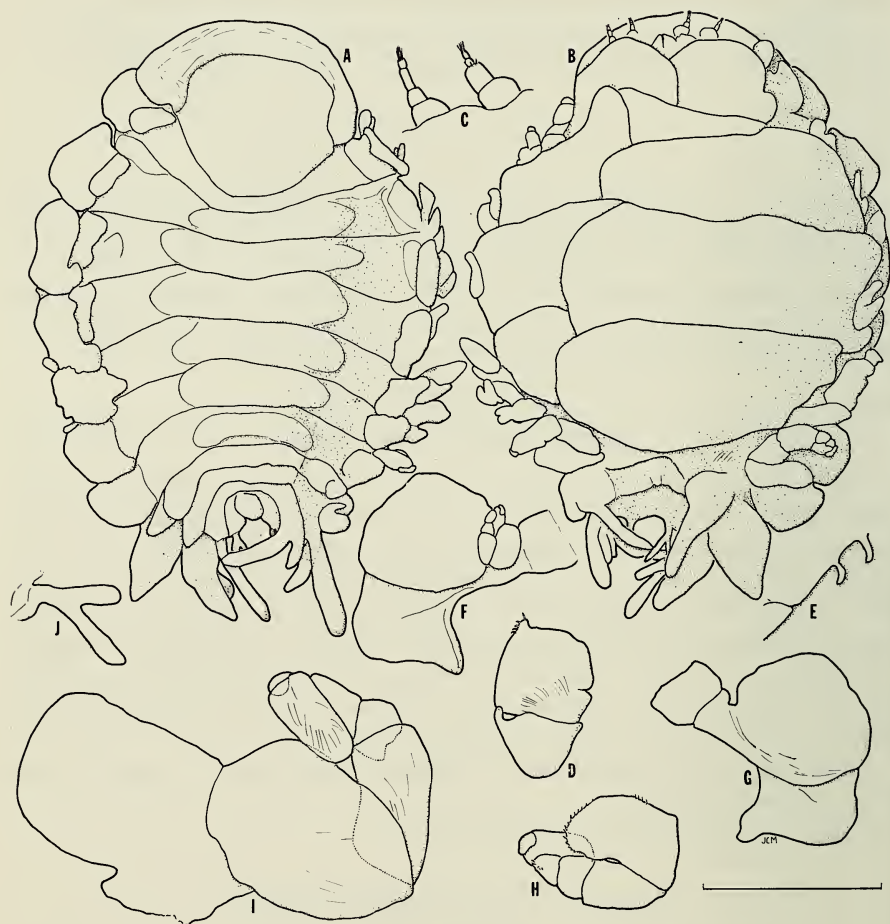


Fig. 1. *Kolourione premordica*, holotype female: A, Dorsal; B, Ventral; C, Right antennae; D, Left maxilliped; E, Left posteroventral border of head; F, Left oostegite 1, external; G, Same, internal; H, Left pereopod 1; I, Left pereopod 7; J, Left pleopod 4. Scale: 1.0 mm for A, B, D, F, G; 0.4 mm for C, H, J; 0.6 mm for E.

May 1964, A. Veillet, coll.: 5♀, 5♂, RMNHL. Unknown specific locality, Haiti, A. Veillet, coll.: 6♀, 4♂, MNHNP. From *Sphaciospongia vesparia*, unknown specific locality, 3 m, Curaçao, 13 April 1976. E. Westinga and P. Hoetjes, coll. 2♀, ZMA.

*Description of holotype female (Fig. 1).*—Length 2.6 mm, maximal width 2.0 mm, head length 0.8 mm, head width 1.0 mm, pleon length 0.4 mm (all measurements excluding frontal lamina and pleonal appendages). Distortion of body axis 22°. Outline nearly oval without abrupt changes in

width, margins covered by prominent frontal lamina and coxal plates. All body regions and segments clearly defined (Fig. 1A, B).

Head rather large, suboval but somewhat more pointed posteriorly. Frontal lamina very large, enclosing all of anterior and anterolateral margins of head. Eyes absent. Antennae (Fig. 1C) prominent, each of 4 segments; each antenna tipped with tuft of setae, antenna 1 also with scattered setae on second segment. Maxilliped (Fig. 1D) distinctly bisegmented, straight anteriorly, rounded posteriorly; setose nonarticulated palp extending forward from anterolateral corner; slender extension of anterolateral corner of posterior segment overreaching anterior segment. Posteroventral margin of head (Fig. 1E) with 2 simple slender comma-shaped projections at each side and straight central margin.

Pereomeres all of nearly same size, lateral margins of each covered by large coxal plates slightly better developed on convex side. Anterolateral bosses immediately medial to coxal plates on both sides of first 4 pereomeres. Broad flat middorsal swellings on pereomeres 2-7. Oostegite 1 (Fig. 1F, G) rounded anteriorly, somewhat pointed posterolaterally, anterior lobe and posterior region about equally long; internal ridge unornamented. Oostegites 2-5 tightly overlapping and enclosing brood pouch. Pereopods (Fig. 1H, I) all of about same proportions but doubling in size posteriorly; basal segments of all pereopods larger than other segments combined; pereopod 1 with sparse marginal setae, others nonsetose.

Pleon of 5 pleomeres. Short pointed lateral plates on pleomeres 1-2, none on others. Biramous pleopods with lanceolate rami on pleomeres 1-4, those on pleomere 4 (Fig. 1J) much smaller than others. Pleomere 5 embedded in pleomere 4 so posterior margin of pleon concave; pleomere 5 visible only dorsally, lacking appendages.

*Description of allotype male (Fig. 2A-F).*—Length 1.65 mm, maximal width 0.65 mm, head length 0.24 mm, pleon length 0.25 mm. All body regions and pereomeres distinctly separated. Sides of pereon nearly parallel, head and pleon narrowing rapidly (Fig. 2A, B).

Head subovate, rounded anteriorly and very obtusely angled posteriorly. Eyes absent. Antennae (Fig. 2C, D) well developed, those of second pair extending far beyond margin of head (in allotype only, right antenna 1 missing); antenna 1 of 3 segments, antenna 2 of 5; each antenna tipped with tuft of setae, also bearing sparse setae on penultimate and antepenultimate segments.

Pereomeres separated for about  $\frac{1}{4}$  of distance in from each side. Pereomere 3 broadest but only slightly so. No midventral tubercles on any pereomeres. Pereopods (Fig. 2E, F) all of nearly same size, but pereopods 1-4 with dactyli proportionately much larger and carpi proportionately much smaller than same segments of pereopods 5-7; sparse setae on carpi and occasionally on other segments.

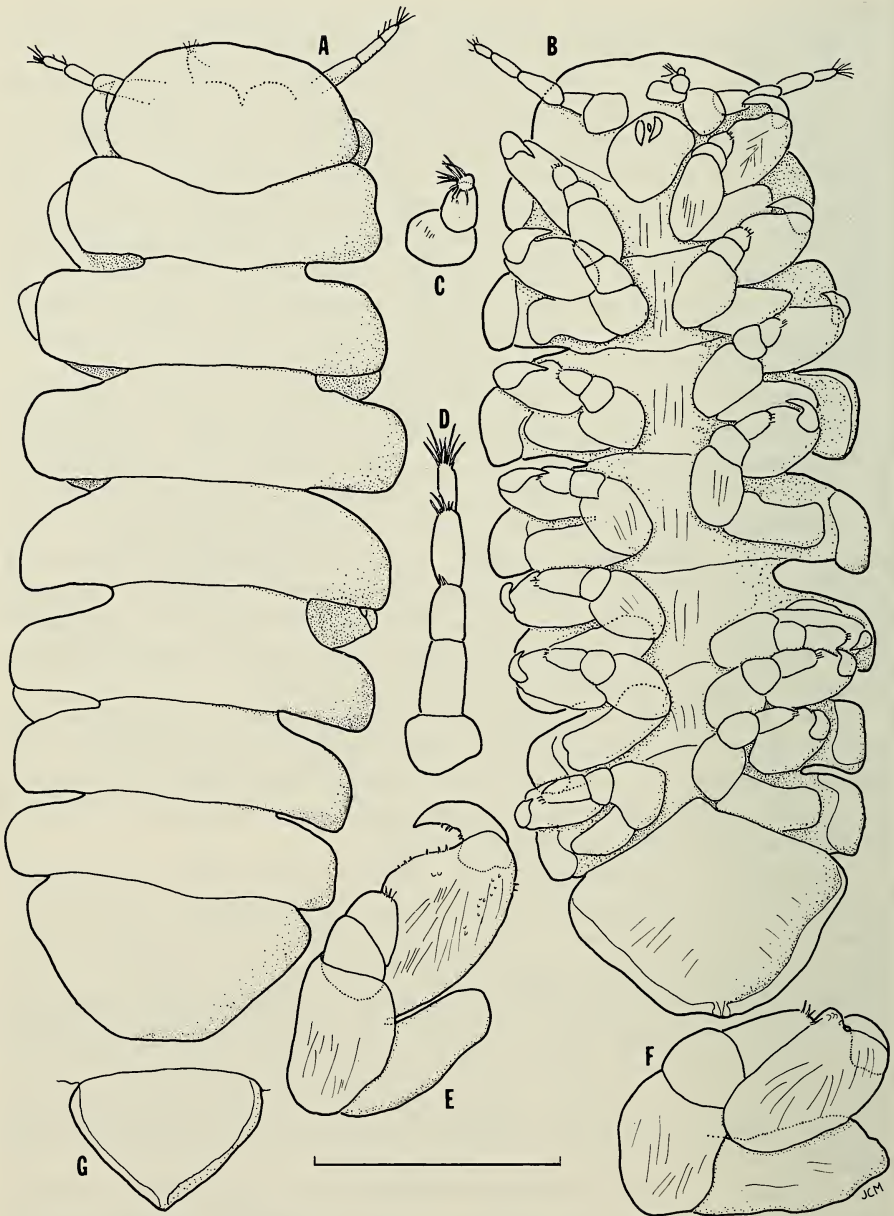


Fig. 2. *Kolourione premordica*, A-F, allotype male; G, paratype male. A, Dorsal; B, Ventral; C, Left antenna 1; D, Left antenna 2; E, Left pereopod 1; F, Left pereopod 7; G, Pleon, dorsal. Scale: 0.4 mm for A, B, G; 0.2 mm for C-F.

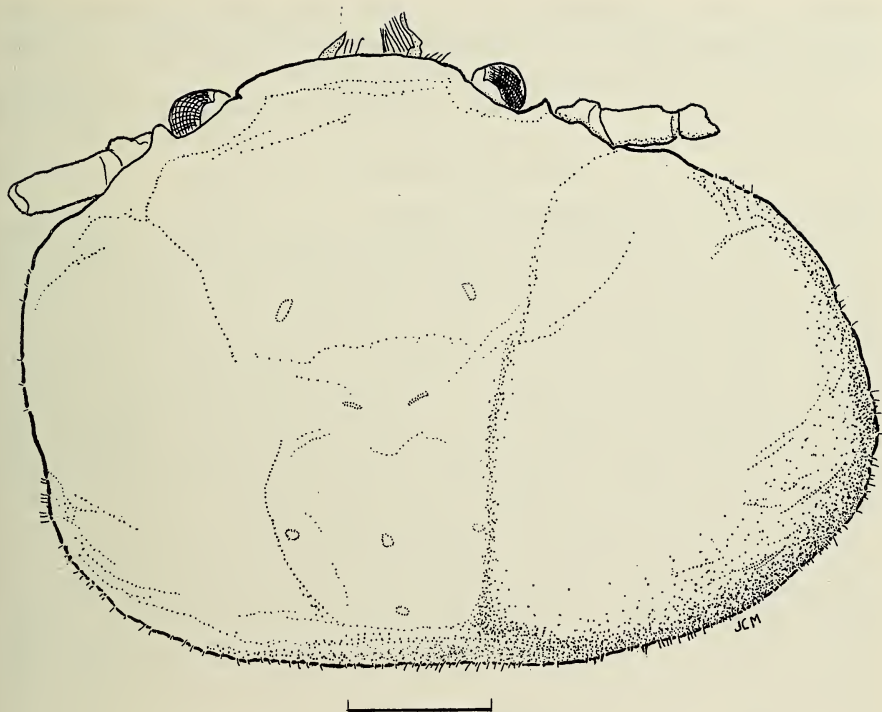


Fig. 3. *Pachycheles ackleianus* infested by *Kolourione premordica*. Scale: 1.0 mm.

Pleon of single fused piece, straight anteriorly, rounded posteriorly. Ventrally, anterior margin extended into prominent triangular point reaching forward and down. No pleonal appendages or any rudiments of them.

*Etymology*.—The specific name *premodica*, meaning “bitten off,” refers to the concave posterior margin of the female.

*Discussion*.—The most conspicuous character of this new species, the peculiar concavity of the female’s pleon, immediately excludes it from any existing genus, so, on that basis alone, the creation of a new genus appears fully justified. As Shiino (1965) has suggested, the major evolutionary trends in the Bopyridae are probably a progressive fusion of body segments and loss of appendages in both sexes. By those criteria, *Kolourione* belongs at a rather advanced level in the Pseudioninae, the least evolved subfamily. Characters of the female which indicate this are the lack of articulation of the maxilliped palp, the absence of ornamentation from the posteroventral border of the head and the internal ridge of the first oostegite; and, especially, the presence of only 5 pleomeres. The reduction of lateral plates and posterior pleopods and the lack of uropods also signify an advanced

condition. In the male, the most important character is the fused pleon which completely lacks traces of appendages and segmentation; this, too, indicates an advanced position in the Pseudioninae.

Another genus whose female has 5 pleomeres is *Balanopleon* Markham (1974), but it has a reduced frontal lamina and coxal plates but distinct uropods, in contrast with those of the female of *Kolourione*. The male of *Balanopleon* has 2 pleomeres rather than one.

Variations among individuals of *Kolourione premordica* are minor. Most of the other males and many of the females bear slit-shaped dark eyes close to and parallel to the posterolateral margins of their heads. This is probably the normal condition in this species, the eyes of the types having lost their pigment during preservation. A few females are relatively broader and, in some, the posterior concavities are less pronounced. Males show some variation in pleon shape (Fig. 2G), but no other significant differences. Those males still attached to their mates were clinging to the ventral surfaces of their pleons between their pleopods, heads forward. This is a common site of attachment among bopyrids.

The occurrence of *Kolourione premordica* on male and female hosts and in dextral and sinistral forms is about equal. Among those specimens in which such characteristics could be determined, 10 infested females, 7 males, 10 were dextral and 9 sinistral. There was little correlation between the lengths of the female parasites and their hosts' carapaces (of 16 measured, female length =  $0.31 \times$  host carapace length + 0.92,  $r = 0.114$ ), although in other species I have found a high correlation between such lengths. Similarly, the lengths of males did not correlate with the lengths of hosts ( $n = 14$ ,  $r = 0.219$ ) or of females ( $n = 13$ ,  $r = 0.113$ ).

*K. premordica* seems to have little or no effect on the fecundity of female hosts. Of the 7 parasitized females examined, all bore eggs in various stages of development, their numbers ranging from one to 39. Such a phenomenon has previously been recorded (Markham, 1975) for another western Atlantic parasite of a porcellanid, *Aporobopyrus curtatus* (Richardson) infesting *Porcellana sayana* (Leach). The branchial swelling of the host's carapace (Fig. 3) is quite conspicuous, as it is in *Petrolisthes armatus* (Gibbes) (Markham, 1975).

Bourdon (1976) earlier reported bopyrid infestation of *Pachycheles ackleianus*, by *Pleurocryptosa calypso* Bourdon in Brazil. This geographical pattern of infestation is similar to that of another wide-ranging western Atlantic porcellanid, *Petrolisthes armatus*, which is infested by *Aporobopyrus curtatus* along the eastern coast of North America and in the Caribbean but by a different species in Brazil and by yet a third in the eastern Pacific (Markham, 1975).

With the description of *Kolourione premordica*, the number of bopyrid species known to infest porcellanids in the northwestern Atlantic is now

4. In addition to *K. premordica* and *Aporobopyrus curatus*, *Astalione cruciaria* Markham (1975) infests *Clastoetochus vanderhorsti* (Schmitt) at St. Croix, and *Pseudione trilobata* Nierstrasz & Brender à Brandis (1925) infests *Pisosoma angustifrons* Benedict at Curaçao.

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*Note added in proof.*—The specimens listed as coming from the "Gulf of Mexico" (MESC collection) were taken in depths of from 25-55m off the coast of Florida at four localities: 20°40'N, 87°37'W; 27°38'N, 83°59'W; 28°32'N, 84°19'W; and 28°36'N, 84°37'W.