ON TWO NEW SPECIES OF THE GENUS ACANTHOCHONDRIA OAKLEY (CRUSTACEA COPEPODA) FOUND IN JAPAN

by

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Acanthochondria Oakley is a genus of parasitic copepods, the members of which usually cling to the gills or gill arches of fishes, or to the mucous membrane of their buccal cavity, or to the inner surface of their operculum. Two new species of this genus recently obtained in Japan are described here in some detail.

Acanthochondria yui sp. nov. (figs. 1, 2)

Occurrence. — On the operculum, the gill arches and the roof of the buccal cavity of *Acanthogobius flavimanus* (Temminck & Schlegel), taken at the estuary of the river Aikawa, Tsu, Japan, by Mr. K. Mori. 19 females on one host, 22 on another; each associated with a male. One of the females from the former lot is selected the holotype.

Female. — The colour is whitish, the egg tubes are white. The length from the head to the abdomen is 5.53 mm, that from the head to the caudal lobe of the fourth segment 6.00 mm, the width across the third segment is 2.66 mm, the egg tube measures 4.27 mm.

The head is ovoidal, slightly wider posteriorly than anteriorly, and as long as the next two segments combined. The first thoracic segment is cylindrical, short, and somewhat narrower than the head. The second segment is a little broader than the head, with round sides, and is separated from the adjoining segments, both in front and behind, by lateral notches. The third and fourth segments are swollen, strongly widening, and separated from each other by a pair of lateral constrictions. They are well convex on the sides, and subequal to each other both in length and in width; their combined length on the midline equals that of the rest of the body, and their width reaches twice that of the head. The fourth segment has a pair of linguiform lobes, extending backwards for some distance beyond the terminal end of the body. The genital segment is small; it is conical in shape, and inserted between the just mentioned lobes. It carries at its caudal end a tiny spheroidal abdomen.

The antennule is short, sausage-shaped, unsegmented, and tipped with

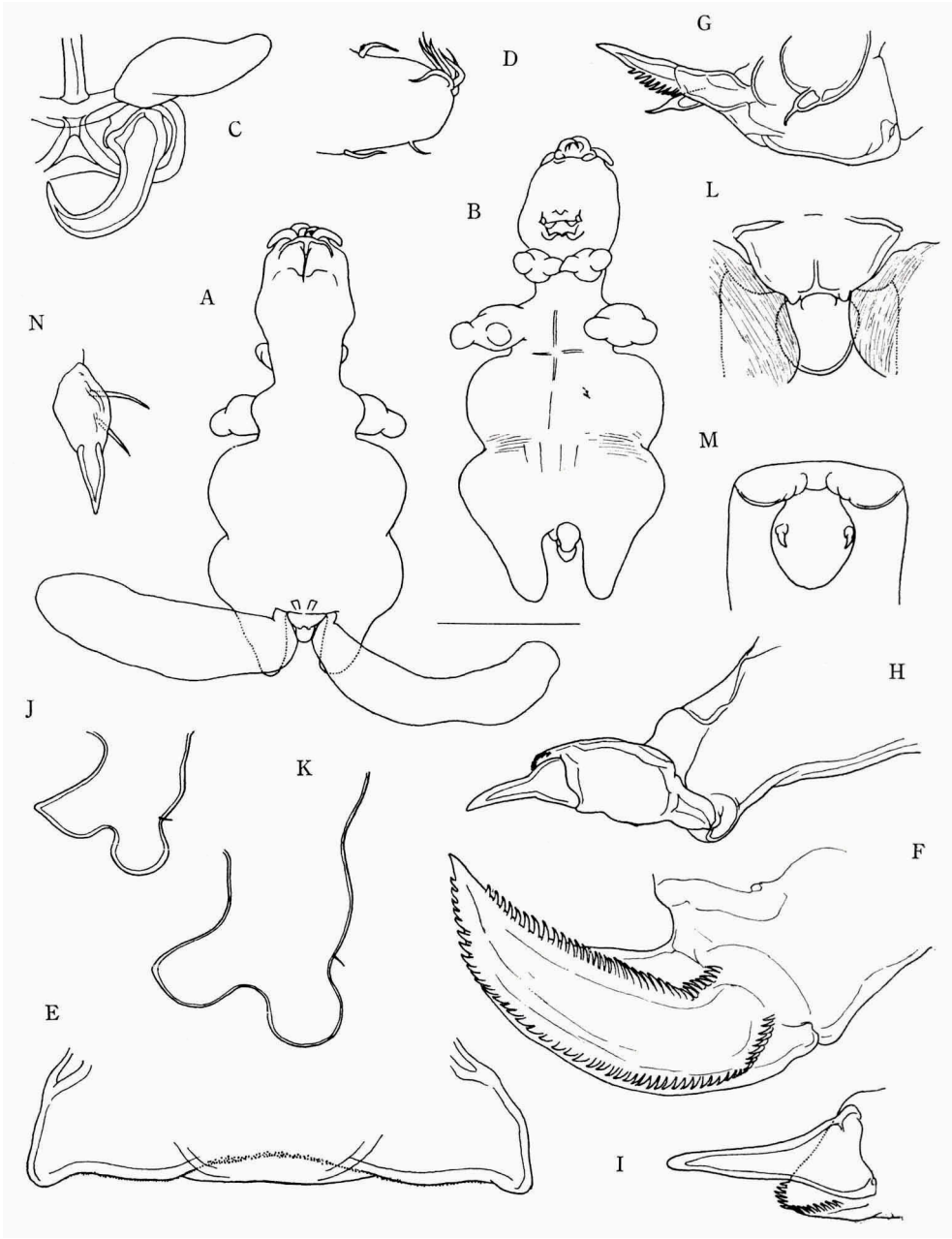

Fig. 1. *Acanthochondria yui* sp. nov., female. A, dorsal aspect; B, ventral aspect; C, antennule and antenna; D, apex of antennule; E, labrum; F, mandible; G, maxilla and first maxilliped; H, second maxilliped; I, tip of same; J, first leg; K, second leg; L, genital segment and abdomen, dorsal aspect; M, same, ventral aspect; N, caudal ramus. A, B, × 10; C, × 52; D, E, G, H, N, × 170; F, I, × 340; J, K, × 27; L, M, × 41.

a bundle of short hairs; furthermore some scattered subapical hairs are present. The antenna is relatively slender, strongly curved like a hook with a sharp apex. The mandible is falciform, having the blade doubly edged and sharply serrate. The labrum has fine tubercles on the free margin. The maxilla is a round lobe, carrying a short rod terminating in a tiny spinule. The first maxilliped has the exopod acuminate distally and serrate on its hind margin; the endopod is short, rod-shaped, ending in a spinule.

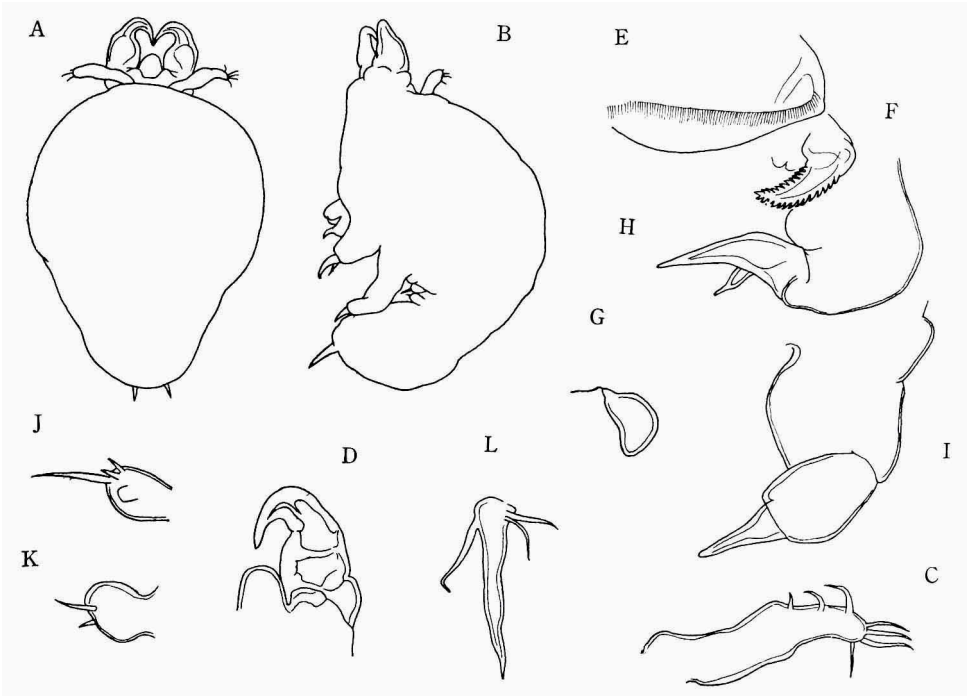

Fig. 2. *Acanthochondria yui* sp. nov., male. A, dorsal aspect; B, lateral aspect; C, antennule; D, antenna; E, labrum; F, mandible; G, maxilla; H, first maxilliped; I, second maxilliped; J, first leg; K, second leg; L, caudal ramus. A, B, × 83; C, E-I, × 340; D, × 170.

The second maxilliped has the apical segment attenuated towards the blunt end; the penultimate segment bears a small terminal dilatation with a row of denticles along its distal margin. The first and second legs are biramous; the latter is larger than the former. The outer rami of both legs are rounded and bear a short spine on the outer side near the base. The inner ramus of the first leg is somewhat acutely pointed inwards, whereas that of the second leg is less so. The caudal ramus is vestigial, ending in a conical spine, and

carrying two feebler additional spinules on its outer border. The egg tubes are sausage-shaped, packed with multiserial polygonal eggs.

Male. — Dwarf, attached to the genital segment of the female. From the tip of the second antenna to the abdomen it measures 0.59 mm, from the head to the abdomen 0.49 mm; the head is 0.38 mm wide and 0.32 mm deep.

The head is globular in dorsal aspect, obovate in lateral aspect; it is flattened ventrally, but strongly swollen dorsally. The thorax and the abdomen are much narrower and shorter than the head, showing a ventral flexure, but no appreciable intersegmental boundary.

The antennule is filiform, extending laterally and carrying a few terminal and subterminal spinules. The antenna protrudes forward; it is hook-like and relatively stout; between the two antennae a semicircular disc-like expansion of the head is exposed. The labrum bears a row of submarginal hairs. The mandible is falciform, with a double row of marginal denticles. The maxilla is an oval non-spinulose lobe. The endopod of the first maxilliped is like in the female, but the exopod lacks the marginal serration. The second maxilliped shows no serrate distal dilatation on the second segment. Two pairs of thoracic legs are present. Both are mammiform papillae carrying a few short spinules. The caudal ramus is filiform, attenuating toward the end and bearing two outer and one inner feeble hairs at the base.

Remarks. — The present new species is most closely allied to *Acanthochondria brevicorpa* Yü which is a parasite of *Acanthogobius hasta* (Temminck & Schlegel) occurring on the Chinese coast. It has a slenderer neck (the region of the first two thoracic segments) than in the holotype of Yü's species. The thoracic legs of the present species are devoid of the inner conical bulge on the exopod, which is present in the holotype of *A. brevicorpa*, and furthermore do not possess the tiny accessory spinule on the maxilla. *Acanthochondria hazekuti* Yamaguti, which is parasitic on the same host as *A. brevicorpa* and in all probability is synonymous with that species, is also different from *A. yui* in the points noted above. The present species is named for the late Dr. S. C. Yü, celebrated carcinologist from China, who in an exhaustive study described *A. brevicorpa*.

Acanthochondria priacanthi sp. nov. (fig. 3)

Occurrence. — On the inner surface of operculum of *Priacanthus boops* (Houttuyn), obtained at Sado Island, Japan Sea. A female and a male in the copepodid stage.

Female. — The colour is whitish, opaque. The length from the head to the abdomen is 4.51 mm, from the head to the end of the caudal lobe of the fourth segment 5.03 mm, the third thoracic segment is 1.96 mm wide, the width across the second legs is 2.36 mm.

Fig. 3. *Acanthochondria priacanthi* sp. nov., female. A, ventral aspect; B, dorsal aspect; C, antennule; D, antenna; E, labrum, mandible, maxilla, first and second maxillipeds in situ; F, first leg; G, second leg; H, caudal ramus. A, × 21; B, × 14; C, D, × 83; E, H, × 170; F, G, × 41.

The head is wider than long, more or less quadrate, and with a pair of deep notches on either side about the middle of its length. The first two segments are well separated from each other, from the head and from the succeeding segment. Their combined length is a little less than that of the head; the first segment is narrower than the head, but the second is subequal to the latter in width. Both segments have distinctly convex sides.

The third segment is expanded, ovoidal in shape, wider than long, and less than twice as wide as the head. It is separated from the preceding and the succeeding segments by a pair of deep lateral incisions. The fourth segment is as wide as the third, but shorter when measured mid-ventrally. It bears a pair of narrow lobes which extend backwards and are directed parallel to each other. The genital segment is small, conical, and carries the smaller, spheroidal abdomen.

The antennule is short, relatively thick and tipped by a small number of tiny hairs. The antenna is hamate, strongly curved and with a sharp apex. The labrum is trapezoid, granular on the margins. The mandible is as usual, with the blade doubly edged by sharp denticles. The maxilla is oblong ovate, with a stouter outer and a feebler inner spine. The exopod of the first maxilliped is serrate on its posterior border; the endopod is feebler, without serrations, but with a short terminal spine. The second segment of the next maxilliped has a finely serrated terminal expansion; the third segment is sharply pointed. The two pairs of legs are biramous, the posterior pair is much stouter than the anterior and extends laterally beyond the sides of the third segment. The endopod of both the legs tapers inwards; the exopod is round, knob-like, though with a papilliform bulge on its inner side. The caudal ramus is tiny; it ends in a stouter terminal spine and possesses two feebler basal hairs, one on the outer and one on the inner side.

Male. — The only specimen is in the last copepodid stage.

Remarks. — By its relatively short neck (the first and second free segments), which shows distinct segmentation, and by the trunk (the third and fourth segments) which is divided into two by the lateral constrictions, the present species shows a more or less close relationship to *A. soleae* (Kröyer), *A. flurae* (Kröyer), *A. sixteni* (Wilson), *A. depressa* (T. Scott), *A. briani* (Yü & Wu), *A. incisa* Shiino and *A. constricta* Shiino. The new species, however, is distinguished from all of these as well as from other known members of the genus, except from *A. brevicorpa* Yü, by that the head is constricted in about the middle of its length. In this as well as in some other respects it comes nearest to *A. brevicorpa,* but differs in that the caudal lobes of the genital segment extend backwards parallel with each other instead of converging.

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