

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/246933481>

Ergasilus rotundicorpus n.sp. (Copepoda: Ergasilidae) from *Siganus guttatus* (Bloch) in the Philippines

Article in *Systematic Parasitology* · December 1983

DOI: 10.1007/BF00009158

CITATIONS

11

READS

178

2 authors:



John Brian Jones

Murdoch University

179 PUBLICATIONS 3,526 CITATIONS

[SEE PROFILE](#)



Mike Hine

89 PUBLICATIONS 3,140 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



1995 to 2012 Fish Pathologist, Western Australian Department of Fisheries [View project](#)



AAHL Fish Disease Laboratory [View project](#)

Ergasilus rotundicarpus n.sp. (Copepoda: Ergasilidae) from *Siganus guttatus* (Bloch) in the Philippines

J.B. JONES and P.M. HINE

Fisheries Research Division, Ministry of Agriculture and Fisheries, P.O. Box 19062, Wellington, New Zealand

Summary

A new species of *Ergasilus* is described and illustrated from the gills of juvenile (*c.* 70 mm total length) *Siganus guttatus* reared in a Philippine fish farm. Of 15 fish examined, all were infested and nine had concurrent lymphocystis infections.

Introduction

In 1978 while one of us (P.M. Hine) was visiting the SEAFDEC research station at Pandan, Panay, Philippines, to advise on fish disease control, ergasilid copepods were recovered from the gills of *Siganus guttatus* fingerlings (approximately 70 mm long). Of 15 fish examined, all were infested with copepods and 9 also exhibited signs of lymphocystis, a non-lethal infection resulting in neoplastic-like growths. The disease is caused by a virus infection and may possibly be transmitted by ergasilid copepods (Nigrelli, 1950).

Two adult *Siganus guttatus* were examined for copepods and both were uninfested. Three 20 mm fry and 17 *S. canaliculatus* fry between 15 and 20 mm were also free of both copepods and lymphocystis.

The copepods were subsequently identified as a new species of *Ergasilus* which is described below. Specimens were dissected with glass needles and examined in Berlese mountant using phase contrast and Normaski illumination. All drawings were prepared with the aid of a camera lucida.

Ergasilus von Nordmann, 1832

Ergasilus rotundicarpus n.sp.

Type material:

Forty-five females from the gills of *Siganus guttatus* (Bloch) caught at SEAFDEC station, Magaba, Pandan, Panay, Philippines (11° 45' N, 122° 06' E), 5 September, 1978. Holotype and 10 paratype females deposited in New Zealand National Museum (Z. Cr. 2304-5). 15 paratype females deposited in British Museum (Natural History) (Reg. no. 1981-167-176). Remainder in collection of author.

Female (Figs. 1A, B). Rostral and antennal area slightly projecting. Thorax distended, oval, swelling to maximum girth at level of mouth-parts before tapering posteriorly to genital complex. Five leg-bearing segments discernible but not articulating. Genital complex (Fig. 1C) small, suborbicular, followed by three clearly delimited abdominal segments each with row of spinules on ventral posterior margins. Uropods (Fig. 1C) sub-cylindrical, each with four setae. Outer seta half length of

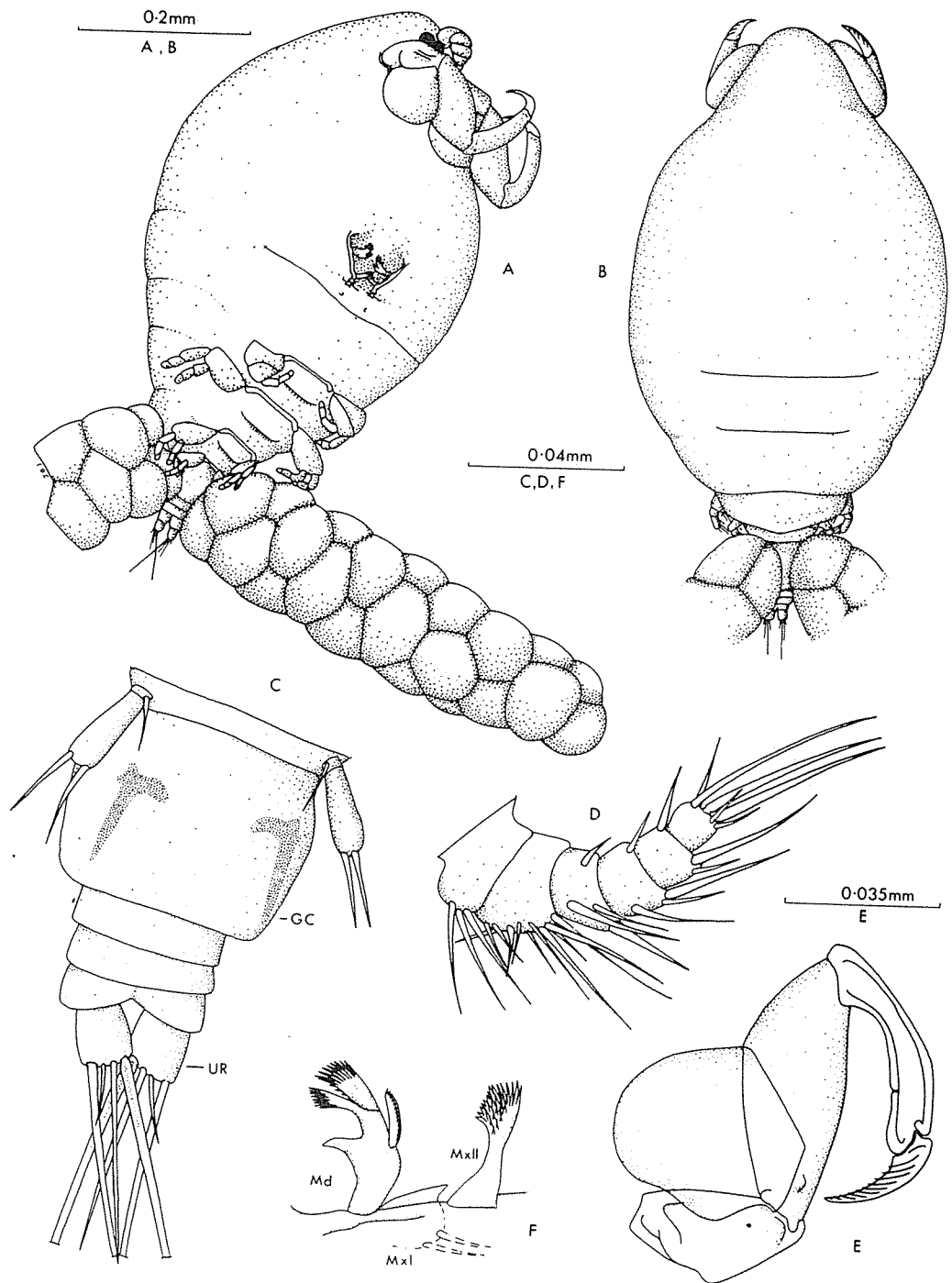


Fig. 1. *Ergasilus rotundicarpus* n.sp. female: (A) ventrolateral view; (B) dorsal view; (C) fifth leg, genital complex and abdomen, dorsal view (GC = genital complex, UR = uropod); (D) antennules; (E) antenna; (F) mouth-parts (Mx = maxilla, Md = mandible).

innermost seta which equals length of abdomen. Body length 0.60 ± 0.04 mm (mean ± 1 S.D., $n = 10$). Maximum width 0.29 ± 0.05 mm. Length of egg-sacs 0.59 ± 0.14 mm, width 0.12 ± 0.01 mm.

Antennules (Fig. 1D) six-segmented, segments clearly delimited, tapering distally.

Antenna (Fig. 1E) four-segmented. Basal segment squat, triangular in shape, bears enlarged posterior process, subspherical in shape, reaching to midpoint of second segment, latter elongate, length twice width, unarmed except for proximal bulge at point where claw opposes. Subchela forming elongate curve, somewhat expanded at base and tip, with tiny pits over surface. Large pit with sensillum on inner margin. Stout terminal claw with diagonal markings.

Mouth-parts (Fig. 1F) comprising mandible and first and second maxillae. Maxillipeds absent (possibly represented by pair of cuticular pits or markings on ventral surface between mouth and rear of cephalosome). Mandible unsegmented, with two distal falciform blades, longer denticulate along both margins, shorter along one margin; long narrow palp on posterior margin with row of fine denticles on inner margin. Anterior margin with sclerotized protuberance of variable size. Maxilla I small, with two apical setae and tapering disto-medial process. Maxilla II with subtriangular basal segment; terminal segment with coarse setae on medial margin, fine setae over remainder.

Legs 1-4 (Figs. 2A-D) rami three-segmented except for two-segmented fourth exopodite. Armature as follows (Arabic numerals = setae, Roman numerals = spines).

				1.	2.	3.
L ₁	coxa 0-0	basis 0-1	exp	1-0;	0-1;	I-5
			end	0-1;	0-1;	II-3
L ₂	0-0	0-1	exp	1-0;	0-1;	0-6
			end	0-1;	0-2;	0-5
L ₃	0-0	0-1	exp	1-0;	0-1;	0-6
			end	0-1;	0-2;	0-5
L ₄	0-0	0-1	exp	1-0;	0-5	
			end	0-1;	0-2;	0-4

Leg 5 (Fig. 1C) two-segmented, basal segment very small, with one medial seta. Terminal segment half length of genital segment, with two setae on apex.

Male. Unknown.

The name chosen (*rotundicarpus*) refers to the swollen trunk of the copepod.

Discussion

There are two species of *Ergasilus* previously recorded from the Philippines, namely *E. philippinensis* Velasquez, 1951 (Velasquez, 1951) from the gills of *Glossogobius giurus* and *E. coleus* Cressey, 1970 (Cressey & Collette, 1976) from *Strongylura urvillii*. The new species may be easily distinguished from both of these by the presence of the swollen posterior process on the base of the antenna.

This species is most closely related to the following species: *E. auritus* Markevich, 1940, *E. cotti* Kellikott, 1879, *E. cyprinaceus* Rogers, 1969, *E. luciopercarum* Henderson, 1927, *E. manicatus* Wilson, 1911, *E. orientalis* Yamaguti, 1939, *E. turgidus* Frazer, 1920, *E. wareaglei* Johnson, 1971 and *E. wilsoni* Markevich, 1933. All these species form a distinct group within *Ergasilus* which is characterized by: a swollen cephalothorax with projecting antennal area; an inflated posteriorly directed portion of the antenna, the diameter of which is larger than the greatest diameter of the second segment; and fourth leg with three-segmented exopodite and two-segmented endopodite.

Of those species listed only *E. orientalis* has a fifth leg which is similar to that of *E. rotundicarpus*, the other species all having fifth legs represented by either one or two papillae each bearing an apical seta. Yamaguti (1939) described *E. orientalis* from *Acanthogobius flavimanus* and *Atherina bleekeri* in Lakes Hamana and Koti, Japan. In body shape it is much more cyclopid, the inflated portion of the antenna is not as pronounced, and there are two distinctive rows of fine setules on the ventral surface of each uropod which are absent in *E. rotundicarpus*.

Acknowledgements

We wish to acknowledge the hospitality of the SEAFDEC staff in the Philippines. The visit was

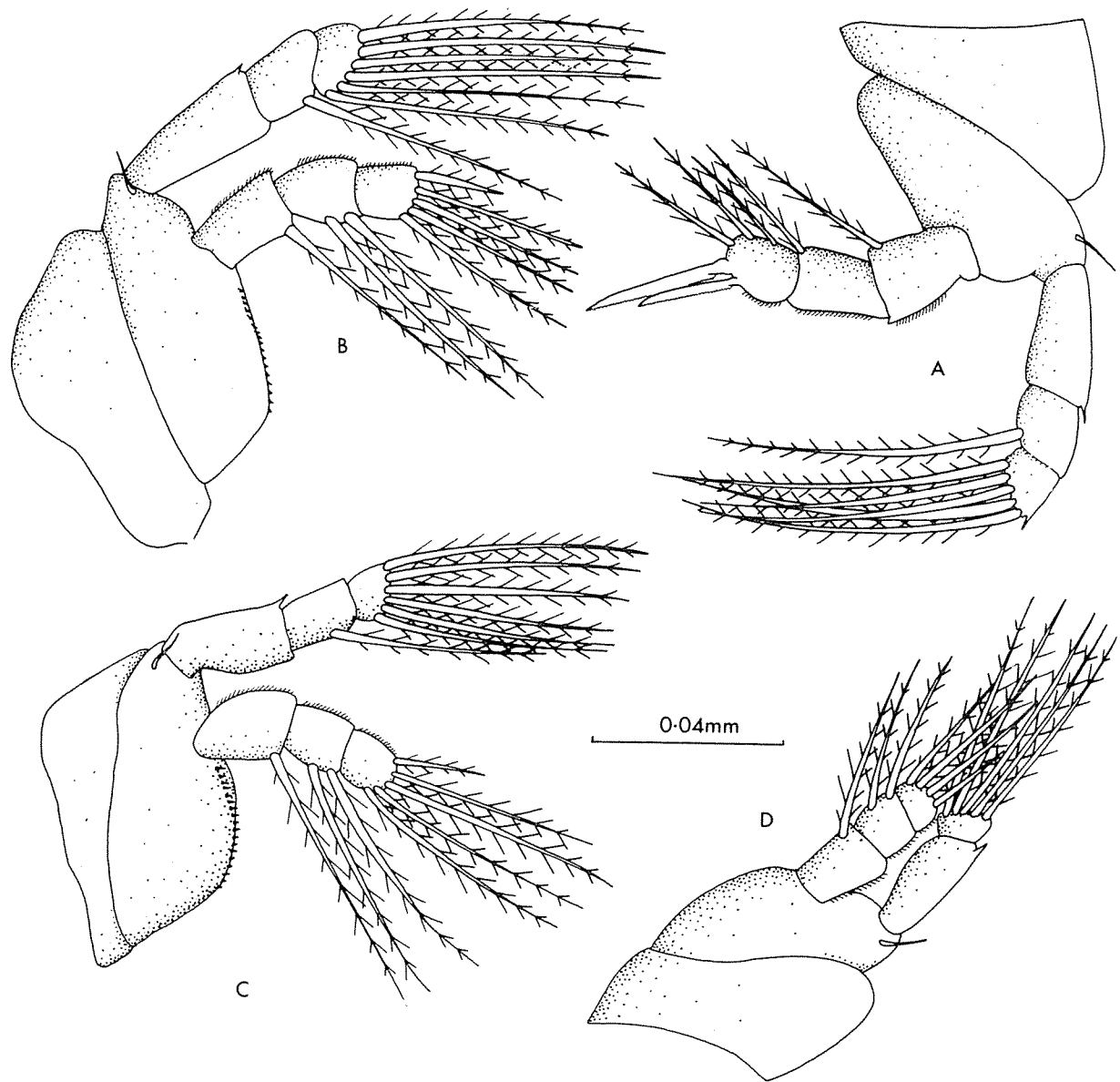


Fig. 2. *Ergasilus rotundicorpus* n.sp. female: (A) leg 1; (B) leg 2; (C) leg 3; (D) leg 4.

arranged as part of New Zealand's foreign aid programme.

References

Cressey, R.F. & Collette, B.B. (1970) Copepods and Needlefishes: A study in host-parasite relationships. *Fishery Bulletin*, **68**, 347-432.

Nigrelli, R.F. (1950) Lymphocystis disease and ergasilid parasites in fishes. *Journal of Parasitology*, **36** (3), p. 36.

Velasquez, C.C. (1951) An unreported Philippine species of parasitic copepod. *Philippines University Natural and Applied Science Bulletin* **11**, 243-255.

Yamaguti, S. (1939) Parasitic copepods from fishes of Japan Part 4. Cyclopoida, II. *Volumen Jubilare pro Prof. Saduo Yoshida* Vol. 2, 391-415.

Accepted for publication 1st September, 1982.