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Catinia rosea n. sp. (Copepoda, Catinidae) associated with *Sipunculus phalloides* (Pallas) from São Sebastião Channel, Brazil

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Abstract

A new species of *Catinia* Bocquet and Stock was found attached to the surface of *Sipunculus phalloides* (Pallas), living in the intertidal zone of Ponta do Araçá, State of São Paulo, Brazil.

The new species differs from the other two species known, *C. plana* and *C. aiso*, because it has a smoother posterior contour (without strong indentations or crenulations), the process of the first segment of the antennule is a triangular serrate lamella mounted on a cylindrical pedestal, and there are minute suckers or sucker-like setae in the antenna and maxilla besides the main sucker of the antenna.

Key words: *Catinia* n. sp., Sipunculans, Copepoda, Brazil.

Introduction

Illg (1971) surveyed the copepod associates of the Sipuncula and Echiura. They are found living both internally and externally on these hosts. *Catinia* Bocquet and Stock belongs to the last type mentioned.

Ten females were collected on *Sipunculus phalloides* (Pallas, 1774) from Ponta do Araçá, São Sebastião (23°49'08"S, 45°24'15"W).

Bocquet and Stock (1957) described the first *Catinia* (*C. plana*) found on *Sipunculus nudus* L. from the Atlantic Coast of France. Kim (2001) re-described the same *C. plana* found in Korea on the same host, and included *Cotylomyzon*, *Cotylomolgus* and *Myzomolgus* in the family Catinidae (Boxshall and Halsey, 2004).

The Catinidae form a taxonomic complex together with *Cotylomyzon* Stock, 1982, *Myzomolgus* Bocquet and Stock, 1957, and *Cotylomolgus* Humes and Ho, 1967, according to the cladistic analysis of Ho (1984).

A new species of *Catinia* (first occurrence on the Brazilian coast) was recorded by Kihara, Rocha and Santos (2005) associated with Thalassinidea shrimps in Ponta do Araçá, São Sebastião, Brazil. Although found in the same region, the *Catinia* here studied differs from the already mentioned *C. aiso* and from *C. plana*. Therefore it is here described.

Material and Methods

The hosts *S. phalloides* (Pallas) were collected by digging in the substrate during low tide in Ponta do Araçá. The sipunculids captured were taken to the laboratory, and those which had associated animals were anesthetized with menthol. The copepods were separated from the host and fixed in a 4% formalin solution, cleared in lactic acid and glycerol, and then studied with a Nikon Labophot microscope.

The holotype (No. MZUSP 16320) was deposited in the Museu de Zoologia of the University of São Paulo, Brazil.

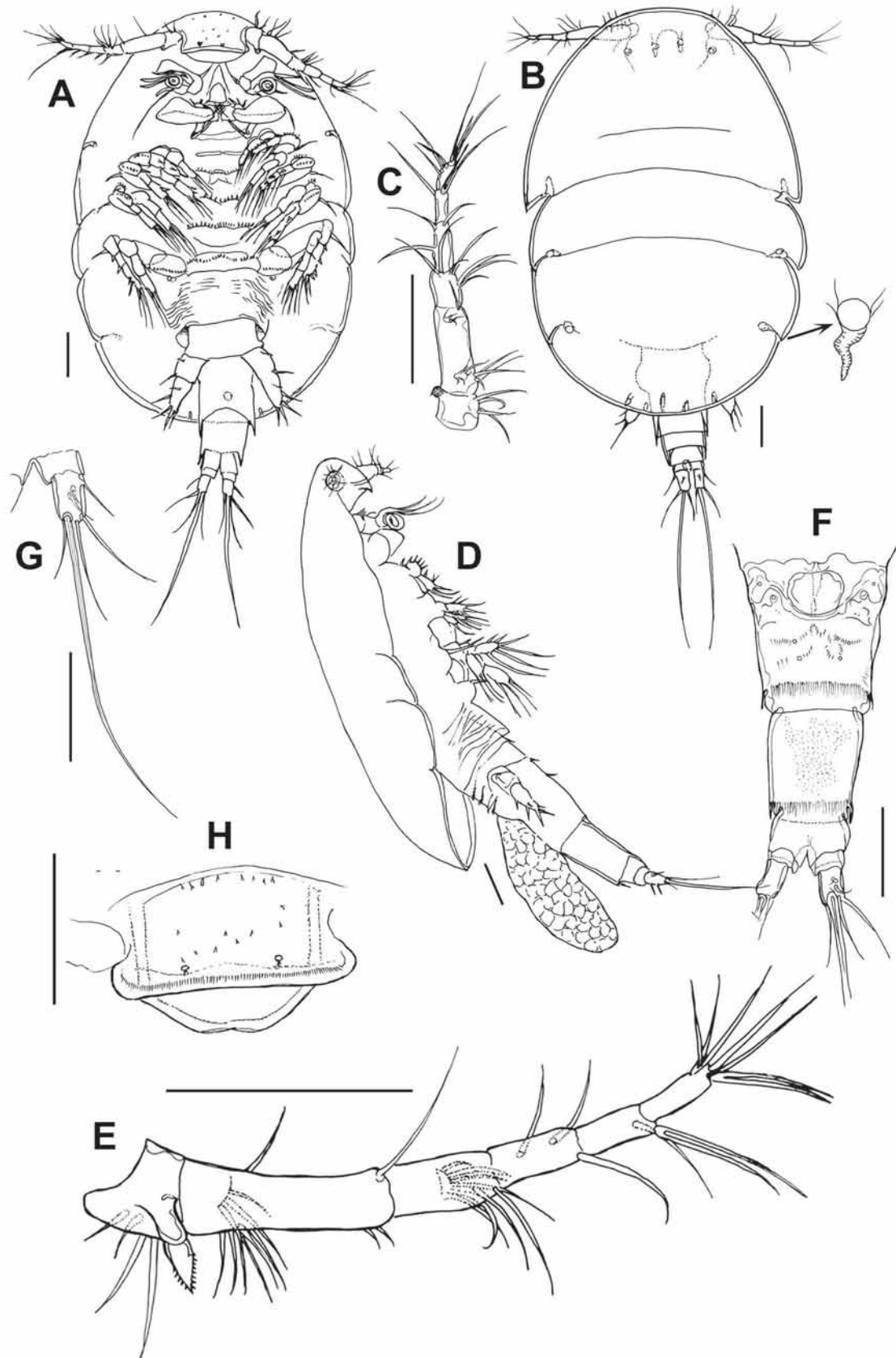


Figure 1A-E. *Catinia rosea* n. sp., female holotype. A. Habitus, ventral view, B. Habitus, dorsal view, C. Left antennule, ventral view, D. Habitus, lateral view. E. Left antennule, posterior view, F. Urosome, dorsal view, G. Left caudal ramus, ventral view, H. Rostrum, ventral view. Scale bars 0.10 mm.

Description

Female; body (Fig. 1A) cyclopiform, flattened, 1.20 mm long from frontal region to the end of caudal ramus (setae excluded). Greatest width 0.69 mm. Prosome flat, laterally expanded, oval, with cephalon and 4 pedigerous somites, second of which well delimited, 2 last somites fused and overlapping urosome. Posterior margin smooth, without deep indentations. Urosome (Fig. 1F) usually telescoped with 5 somites; first 0.13 mm wide; genital somite 0.19-0.22 mm X 0.13-0.14 mm with almost parallel lateral margins. Next somite 0.11-0.14 X 0.11-0.13 mm; anal somite 0.02 mm long X 0.07 mm wide. Caudal ramus (Fig. 1G) twice length of anal somite, with 2 lateral setae, 3 terminal setae, the middle one very long (0.30 mm) and 2 dorsal setae. Two egg sacs with about 100 eggs each. Margins of prosome surrounded by hyaline border.

Sternites and pleurae situated between maxillae and first pedigerous somite bearing transverse thin bars or streaks composed of minute setules ventrally (probable adherence organs) also present on maxillae. Numerous sensilla and pores scattered over entire dorsal face of prosome.

Rostrum (Fig. 1H) small, frontally flattened, with frontal row of sensilla; more ventrally another patch of sensilla and 2 spinules. Transverse bar of minute setules crosses most prominent portion of the rostrum ventrally, from the insertion of one antennule to the insertion of the other antennule.

Antennule (Fig. 1C-E): 6-segmented and with setal formula:

4 + process with pointed serrate blade:
12 : 7 : 3 : 1 + bi : 5 + bi (bi = bithek).

Antenna 4-segmented (Fig. 2A-B), segment 1 with 2 rows of fine setae, large pre-distal patch of very small setae, large strong seta on distal margin. Segment 2 with small suckers on dorsal side; segment 3 with 2 distal setae, and sucker on pedestal, also setules on ventral side; segment 4 with 4 terminal and 1 lateral seta plus serrate pointed lamella on pedestal. Labrum small, bell- or roundish-shaped with frontal row of minute setules, surrounding sucker-like structure.

Mandible, thin, lamella-like with 2-3 processes (Fig. 2C) and 5 small distal setae.

Maxillule (Fig. 2D) small, with 5 setae.

Maxilla (Fig. 2E) cushion-shaped, wide, with row of minute setules across midventral line separating frontal from posterior part of organ. From the dorsal side a supporting arm directed posteriorly, ends in long thin lamella directed frontally and ventrally to mouth. Dorsally, a small sucker at base of supporting arm.

Legs 1-4 (P1-P4) with 3-segmented rami (Fig. 2F-I). Thick inner spine armed with setules on base of leg 1 longer than first endopodal and first exopodal segments. Outer margins of ramal segments in P1-P4 with thin hyaline membranes.

Legs 1-4 with thick inner coxal spine, longer than first endopodal segment. Leg 1 with spinulate spine on exopodal segment 1. Armature formula of legs 1-4:

P1 coxa 0-I; base 1-I; exp. I-0; I-1;
III-1-3; end. 0-1; 0-1; 2-1-2
P2 coxa 0-I; base 1-0; exp. I-0; I-1;
II-1-4; end. 0-1; 0-1; 1-2-1
P3 coxa 0-I; base 1-0; exp. I-0; I-1;
II-2-3; end. 0-1; 0-1; 1-2-2
P4 coxa 0-I; base 1-0; exp. I-0; I-1;
II-1-4; end. 0-1; 0-1; 0-1-2

Leg 5 (Fig. 2J) with 2 segments; proximal subquadrate in outline, with seta and row of minute setules on outer margin and a tuft of setules on inner distal margin. Distal segment, longer than the first, tapers towards distal end and bears 3 rows of minute setules frontally, 2 lateral outer setae and 2 terminal setae.

Discussion

Boxshall and Halsey (2004) cited *Catinia plana* Bocquet and Stock as the only representative of the genus *Catinia*. Since then, two more species have been found: *Catinia aiso* Kihara, Rocha and Santos, 2005 and the species here described. This new species differs from *C. plana* and *C. aiso* by its smoother margin when observed dorsally. *Catinia aiso* has crenulated lateral margins on the last and before-last prosome somites; *C. plana* has strong indentations on the dorsal aspect of the prosome, marking the articulations between the free somites. The

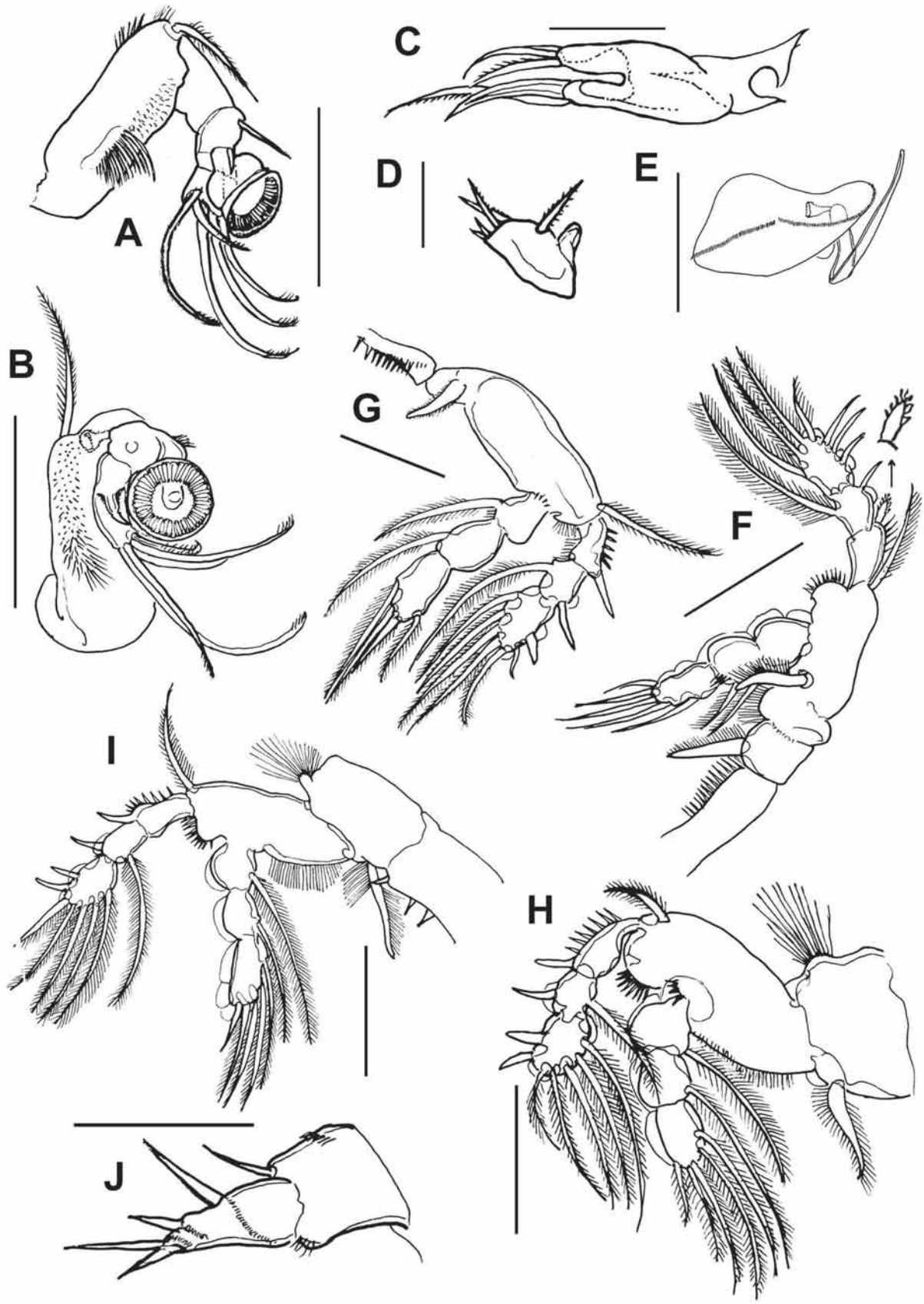


Figure 2A-J. *Catinia rosea* n. sp., female paratype. A. Left antenna, ventral view, B. Left antenna, lateral view, C. Left mandible, ventral view (scale 0.01 mm), D. Left maxillule, ventral view, E. Left maxilla, ventral view, F. Left leg 1, ventral view, G. Left leg 2, ventral view, H. Left leg 3, ventral view, I. Left leg 4, ventral view, J. Left leg 5, ventral view. Scale bars 0.10 mm, unless otherwise stated.

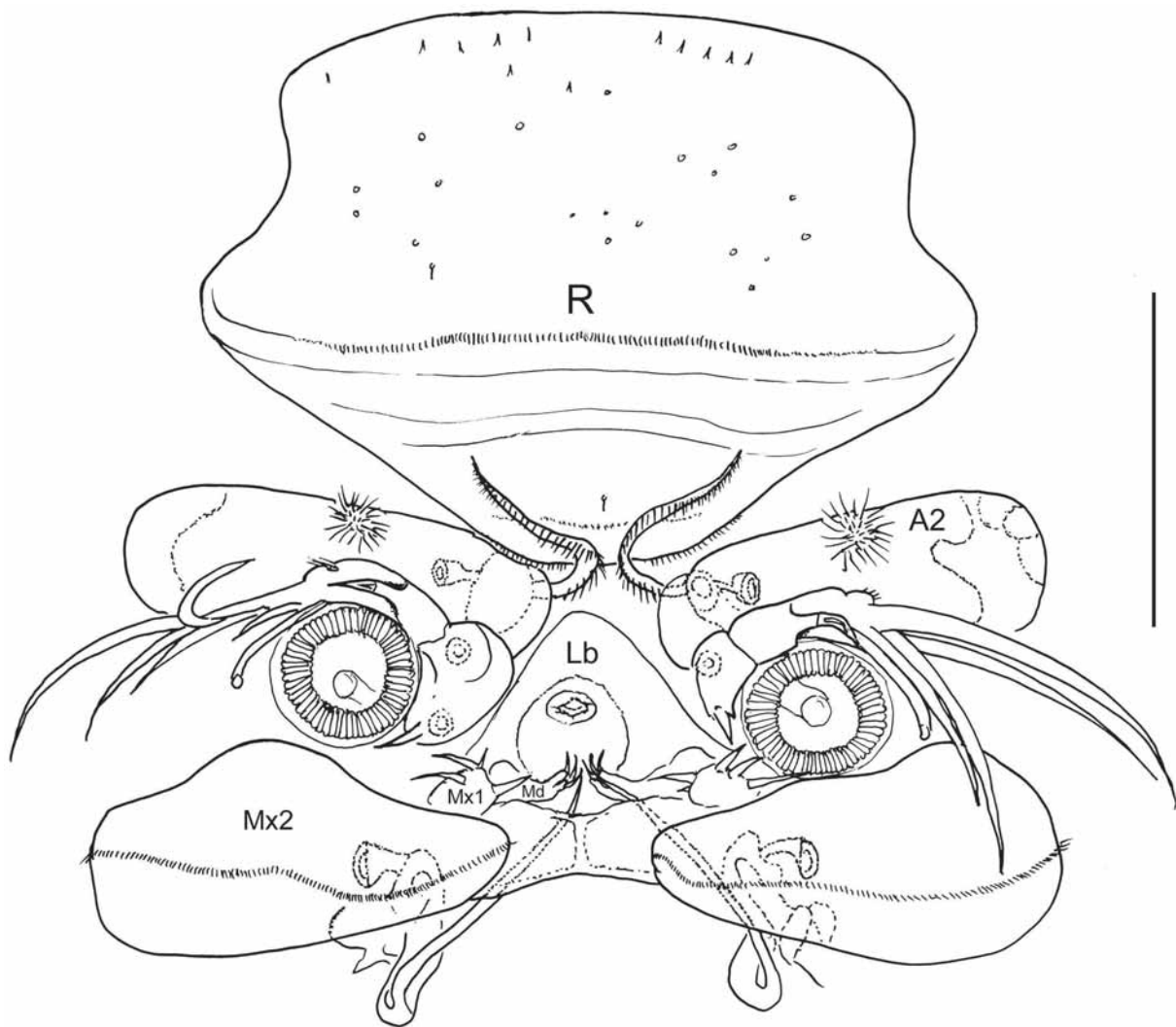


Figure 3. *Catinia rosea* n. sp., female paratype. Mouth parts: A2, antenna; Lb, labrum; Md, mandible; Mx1, maxillule; Mx2, maxilla; R, rostrum. Scale bar 0.10 mm. Scale bars of C and D = 0.01 mm.

urosome of *C. plana* is less overlapped by the prosome than in *C. aiso* and in *C. rosea*. The rostrum is small and wide, not distinctly separated from the prosome, as in the other 2 species. In *C. plana* it is bilobed and sparsely provided with minute spinules. In *C. rosea* the rostrum is almost straight, provided anteriorly and ventrally with many minute spinules, and the posterior margin with a row of minute setules.

The process of the first segment of the antennule is roundish and finely covered by minute spinules in *C. plana*; in *C. rosea* it is prolonged into a thin serrate lamella, and in *C. aiso* it is a thick, spinulose seta.

The antennae of *C. plana* and *C. rosea* are ornamented on the first segment with straight rows of longer thin setules and patches of smaller setules,

whereas *C. aiso* has on the first segment, besides a straight row of small setae, also a semi-circular lamella formed by a row of coalesced setules. *Catinia rosea* has a small dorsal sucker, absent in the other 2 species.

The labrum, triangular in *C. rosea* and in *C. aiso*, is more rectangular in *C. plana* and has spinules on its free margin. *Catinia rosea* has frontally a row of minute spinules, which in *C. aiso* is posterior and pre-marginal.

The mandible, in *C. plana* a simple undivided blade, is long and curved in *C. rosea*, with 2 distal processes and setae. In *C. aiso* it has 2 long processes distally.

The maxilla of *C. aiso* is long and narrow. In *C. rosea* it is diamond-shaped and roundish in *C. plana*. In *C. rosea* it bears a small dorsal sucker,

absent in the other 2 species. The left and right lamella are kept in place by a wide bar which is composed by two halves, fused in the midline of the body, and which covers part of the lamellae. Kim (2001) figured this bar, but did not mention it in the text.

The legs P2-P4 of *C. aiso* and *C. rosea* bear trimerous endo- and exopods. The elements present on the various segments are similar in their total number, but they are arranged differently on the last exopodal segment, with a terminal seta, 4 lateral inner and 2 outer spines in *C. rosea*; in *C. aiso* the setal formula is I, 1-1-4/3 and in *C. plana* it is 1-1-5. P1 of *C. rosea* has a spinulate spine on the exopod segment 1, not present in the other 2 species.

Leg 5 in *C. plana* bears small spines on the distal segment and a very long seta on the proximal. *Catinia rosea* and *C. aiso* have longer spines on the leg 5 distal segment.

The differences observed between this species and the other two justify the creation of a new species *rosea*, referring to its rose color.

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