

VARIAZIONI SUL TEMA II: DESCRIPTION OF *CARCINOCARIS DUSSARTI* SP. NOV., ASSOCIATED WITH XANTHID CRABS, AND NEW DATA ON THE DISTRIBUTION OF *CARCINOCARIS SERRICHELATA* (COPEPODA, HARPACTICOIDA)

BY

V. COTTARELLI¹⁾ and M. C. BRUNO^{2,3)}

¹⁾ Dipartimento di Scienze Ambientali, Università degli Studi della Tuscia,
Largo dell'Università snc, Viterbo, I-01100 Italy

²⁾ Research and Innovation Center — E. Mach Foundation, Via E. Mach 1,
S. Michele all'Adige (TN), I-38010 Italy

ABSTRACT

A new species of the laophontid genus *Carcinocaris*, *C. dussarti* sp. nov. is described. The specimens were collected from the carapax of xanthid decapod crabs gathered in the intertidal zone along the coast of Samed Island, Thailand. This is the third species for the genus; it is most similar to *C. serrichelata*, from which it can be distinguished by the maxillipedal claw of both sexes with three strong teeth, the caudal rami with seven setae, the two-segmented P4 exopodite of the males, the rectangular P5 exopodite of females, and the reduced P6 setation of the females. The differences from *C. minipedia* are represented by the ornamentation of the body surface and maxillipedal claw, the armature of the caudal rami, the structure and armature of P2 of both sexes, the segmentation of the P4 exopodite of the females, and the male P5 with a single seta. Notes on additional records of *C. serrichelata*, previously known from the type locality only, are provided.

RÉSUMÉ

Une nouvelle espèce du genre *Carcinocaris* appartenant à la famille des Laophontidae, *C. dussarti*, est décrite. Les spécimens ont été collectés sur la carapace de crabes Xanthidae occupant la zone intertidale, le long de la côte de l'île Samed, Thaïlande. C'est la troisième espèce du genre ; elle ressemble beaucoup à *C. serrichelata*, dont elle se distingue par le crochet du maxillipède pourvu de trois fortes dents dans les deux sexes, les rames caudales avec sept soies, l'exopodite bi-segmenté de la P4 des mâles, l'exopodite rectangulaire des P5 femelles et la sétation réduite de la P6 des femelles. Les différences avec *C. minipedia* sont représentées

³⁾ e-mail: cristina.bruno@iasma.it

par l'ornementation de la surface du corps, et le crochet du maxillipède, l'armature des rames caudales, la structure et l'armature de P2 dans les deux sexes, la segmentation de l'exopodite de P4 des femelles et la P5 mâle avec une seule soie. Des notes sur d'autres localisations de *C. serrichelata*, auparavant seulement connue de la seule localité type, sont apportées.

RIASSUNTO

Viene descritta una nuova specie di laofontide del genere *Carcinocaris*, *C. dussarti* sp. nov. Gli esemplari sono stati raccolti sul carapace di granchi xantidi viventi nella zona intertidale dell'isola di Samed, Thailandia. Questa terza specie del genere è maggiormente affine a *C. serrichelata* da cui si distingue per il massillipede dei due sessi con tre forti denti, per i rami caudali dei due sessi che portano sette setole, per l'esopodite P4 del maschio bisegmentato, per l'esopodite P5 della femmina di forma quadrangolare, per la differente ornamentazione del P6 della femmina. Le differenze con *C. minipedia* riguardano i massillipedi, l'ornamentazione dei rami caudali e della superficie del corpo, la struttura ed ornamentazione del P2 dei due sessi, la segmentazione del P4 della femmina, l'ornamentazione del P5 del maschio con solo una seta. Vengono anche fornite nuove stazioni di raccolta di *C. serrichelata*, nota finora sola per la località tipica.

INTRODUCTION

For the past few years we have been collecting and studying harpacticoids associated with invertebrates (decapod crustaceans, asteroid and ophiuroid echinoderms) collected in the intertidal zone along the coast of some islands of the Philippines and Thailand. Recently, in a collecting campaign on a small island of Thailand, we found a new species of the genus *Carcinocaris* Cottarelli, Bruno & Berera, 2006. We also collected a new population of *Carcinocaris serrichelata* Cottarelli, Bruno & Berera, 2006 from a new location in the Philippines; this latter record is interesting because it extends the distribution of this species in the northern Pacific Ocean. A third species, *Carcinocaris minipedia* Björnberg & Santos, 2009, was collected in the mangrove area of Brazil and Florida. All three species live associated on the carapace setae of xanthid crabs.

All the Laophontidae associated with decapod crustaceans listed in Fiers (1992) together with the genera *Raptolaophonte* Cottarelli & Forniz, 1989 (cf. Fiers, 1992) and *Carcinocaris*, and several undescribed taxa in our collection (V. Cottarelli, pers. comm.), have a similar and characteristic habitus. For this reason the title of the present paper includes the “key sentence” already used in Cottarelli et al. (2006): “variazioni sul tema” (i.e., variations on a theme, a sentence used by musicians), and we plan to use this sentence again when we will describe other new taxa of this group of crab-ecto-associated harpacticoids.

MATERIAL AND METHODS

Several specimens of the xanthid crab *Leptodius exaratus* (H. Milne Edwards, 1834), collected in the intertidal zone at low tide beneath fragments of coral and Madreporia, were placed separately in a jar filled with filtered (60 μm mesh size) seawater, carefully brushed off with a painting brush, and released. A few male and female crabs were fixed in the field in ethanol for taxonomic identification. Copepods were collected by filtering the residual solution with a 80 μm -mesh plankton net, samples were fixed in the field in ethanol to reach 70% concentration. Specimens were sorted in the laboratory under a Zeiss® stereomicroscope and preserved in a mixture of 80% ethanol and glycerin. Specimens of the type series were permanently mounted between two coverslips in Fauré's medium. The double-coverslips are attached to a slide but can be removed to allow observation of the specimen from both sides. Drawings were made at different magnifications, to a maximum of 1250 \times , using drawing tubes mounted on a Zeiss Axioskop® phase-contrast microscope and a Polyvar Reichert-Jung® interferential contrast microscope. Photographs were taken using a Canon Coolpix digital camera mounted on the microscopes.

The descriptive terminology follows Huys & Boxshall (1991). The following abbreviations are used: A1, antennules; aest, aesthetasc; enp-1-3, endopodite segments 1-3; exp-1-3, exopodite segments 1-3; P1-6, legs 1-6.

Holotype, allotype, one female and one male paratype are deposited in the Muséum national d'Histoire Naturelle, Paris (MNHN). The remaining material of the type series is deposited at the "Dipartimento di Scienze Ambientali, Università della Tuscia", Viterbo (senior author's collection) (DSAUT).

TAXONOMIC ACCOUNT

Family LAOPHONTIDAE T. Scott, 1904

Genus *Carcinocaris* Cottarelli, Bruno & Berera, 2006

***Carcinocaris dussarti* sp. nov.** (figs. 1-4)

Type location. — Specimens were collected on Ao Thian beach, on the eastern coast of Samed Island (i.e., Koh Samed) (12°50'22"N 120°45'24"E) Thailand, in the Gulf of Siam at about 5 km from the continental coast of Thailand. Latitude and longitude were determined using a Garmin GPS 38™ (Global Positioning System).

Type series. — From type locality: holotype, one ovigerous female, dissected and mounted on slide labelled: "*Carcinocaris dussarti* holotype female, Samed Island, Thailand, 04.ii.2008" (MNHN-Cp6042). Allotype, one male, dissected and mounted on slide labelled: "*Carcinocaris dussarti* allotype male, Samed Island, Thailand, 04.ii.2008" (MNHN-Cp6043). Paratypes:

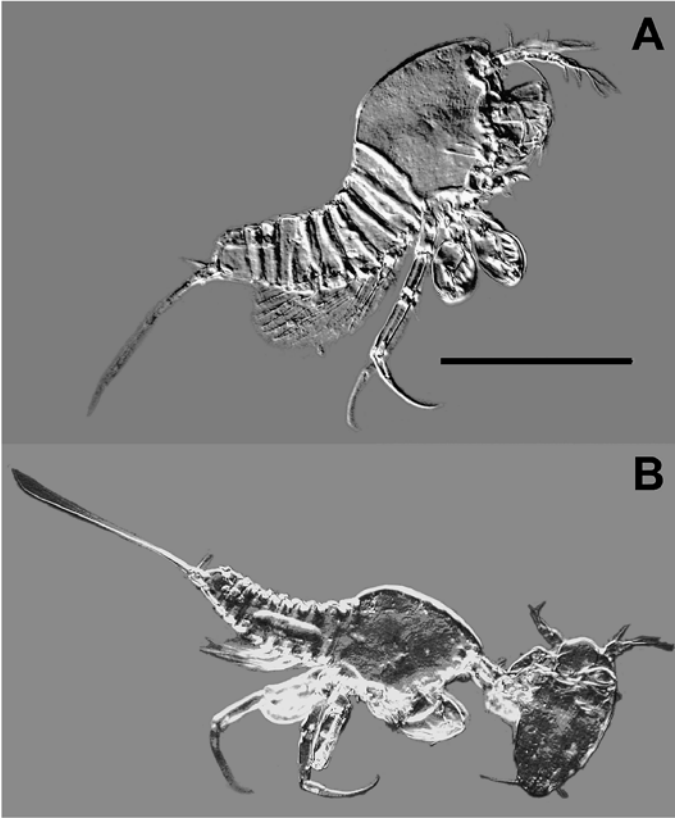


Fig. 1. *Carcinocaris dussarti* sp. nov. A, female; B, male coupling with metanauplius. Scale bar: 200 μm .

seven dissected females (three of which ovigerous) and four undissected females (two of which ovigerous) each mounted on slide labelled: “*Carcinocaris dussarti* paratype female, Samed Island, Thailand, 04.ii.2008” (MNHN-Cp6044, MNHN-Cp6045, and DSAUT); four dissected and five undissected males, each mounted on slide labelled: “*Carcinocaris dussarti* paratype male, Samed Island, Thailand, 04.ii.2008” (MNHN-Cp6046 and DSAUT). Supplementary material: two dissected C4 copepodites, each mounted on slide labelled: “*Carcinocaris dussarti* C4 copepodite, Samed Island, Thailand, 04.ii.2008” (DSAUT); one dissected and four undissected C3 copepodites, each mounted on slide labelled: “*Carcinocaris dussarti* C3 copepodite, Samed Island, Thailand, 04.ii.2008”; (DSAUT). All material collected by V. Cottarelli.

Description of female. — Habitus as in fig. 1A. Length, measured from anterior margin of rostrum to posterior margin of caudal rami: 0.395-0.483 μm ($n = 5$; mean = 0.437 μm). Cephalothorax slightly longer than one-third of the total body length. Cephalothorax smooth, without dorsal integumental window and with 36 lateral sensilla (fig. 2A), with distal border slightly denticulate ventrally. Hyaline frills of all urosomites straight. All free prosomites and

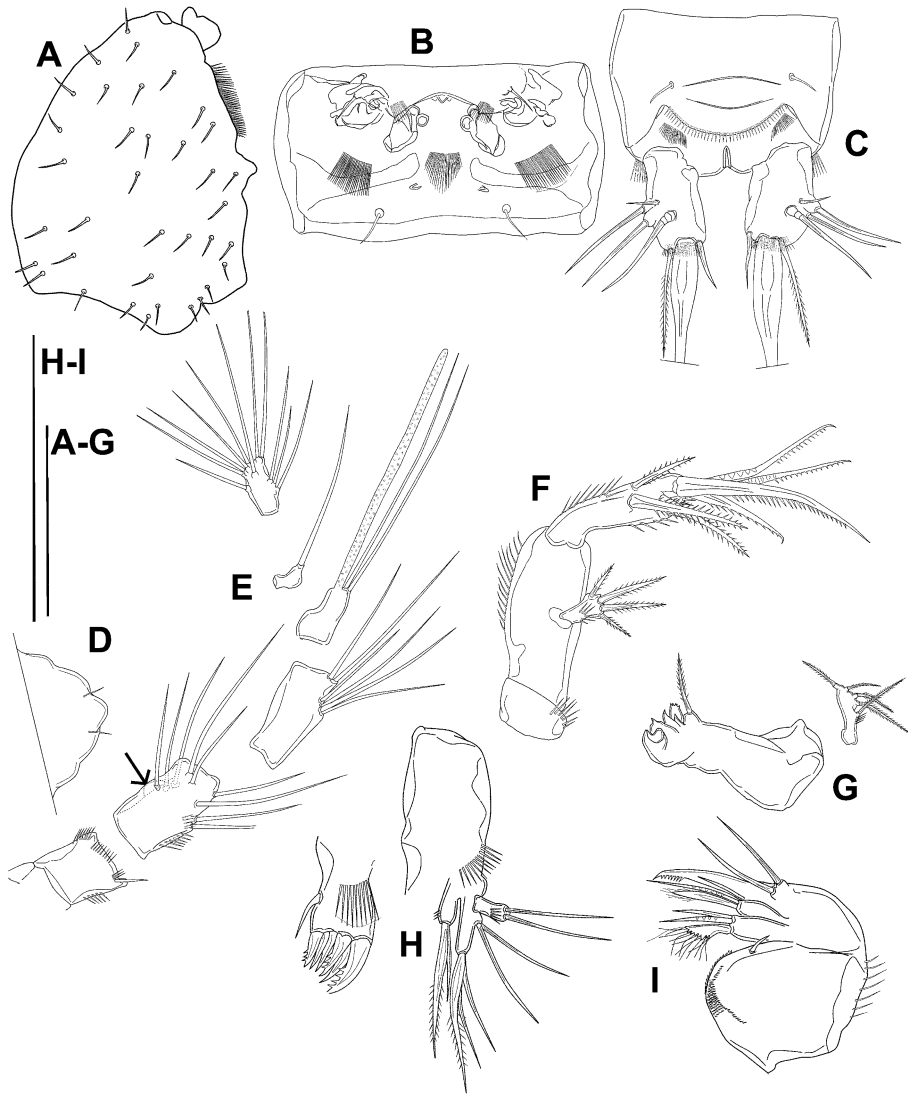


Fig. 2. *Carcinocaris dussarti* sp. nov., female. A, sensillar pattern of cephalothorax, lateral view; B, genital double somite, genital field, P6, ventral view; C, anal somite, anal operculum, caudal rami, dorsal view; D, rostrum; E, antennule, disarticulated; F, antenna; G, mandible, palp disarticulated; H, Mx1, praecoxal arthrite disarticulated; I, Mx2. Scale bars: A = 100 μm ; B-I = 250 μm .

urosomites excluded penultimate one, carrying sensilla and pores. Genital double-somite subdivided dorsally and laterally (fig. 2B) by a chitinous band; ventral side with five tufts of thin spinules, two medial pores, and two distal sensilla. Genital field with copulatory pore surrounded by thin cuticular

ridges (fig. 2B). P6 represented by a small protuberance with one bare seta (fig. 2B). Anal somite (fig. 2C) with ventral transversal row of spinules along the insertion of each caudal ramus, and two dorsal rows of spinules. Anal operculum (fig. 2C) with rows of spinules, flanked by a pair of sensilla. Caudal rami (fig. 2C) cylindrical, shorter than the anal somite; ratio of length to width 1.60, with seven setae. Anterolateral (II) and posterolateral (III) setae slightly longer than caudal ramus; anterolateral accessory seta (seta I) short; dorsal seta (VII) composite, as long as caudal ramus, inserted at 1/3 distance from the distomedial corner. Inner terminal seta (V) proximally widened; outer terminal seta (IV) pinnate, longer than caudal ramus. Terminal accessory seta (VI) short. One transversal row of spinules on the ventro-distal margin.

Rostrum (fig. 2D) round and fused to cephalothorax, not reaching the distal margin of first segment of antennule, bearing two sensilla.

Antennule (fig. 2E): six-segmented, with aesthetasc on segment 4. First segment with distal and lateral row of spinules and one short seta at distomedial corner. Second segment with blunt process near posterior margin (arrowed in figure). Armature formula: 1, 9, 6, 2 + aest, 1, 11.

Antenna (fig. 2F): coxa small, with row of spinules; allobasis elongate, with rows of spinules. Exopodite one-segmented, with two lateral and two apical well developed pinnate setae, and spinules on dorsal surface. Endopodite slightly shorter than allobasis, with lateral rows of spinules. Lateral armature in distal half consisting of two pinnate spines; apical armature consisting of two unipinnate spines, one bipinnate and two geniculate setae.

Mandible: gnathobase of praecoxa with four apical teeth of different morphology and one bipinnate seta at dorsal corner (fig. 2G). Palp (fig. 2G) well developed, one-segmented, with one apical and four lateral setae, all pinnate.

Maxillule (fig. 2H): praecoxa bare, arthrite with one lateral seta, and six spines/setae around distal margin; one row of spinules on posterior surface. Coxa with cylindrical endite bearing one bare seta and one curved pinnate spine. Basis with cylindrical endite ending in one pinnate spine and two setae. Endopodite represented by two setae. Exopodite one-segmented, with two apical setae surrounded at base by spinules.

Maxilla (fig. 2I): praecoxa with rows of spinules, and one small endite represented by a short seta. Syncoxa with two endites, the proximal one with two normal and one enlarged pinnate apical setae; distal endite bearing one normal and one enlarged apical setae. Allobasis ending in a strong pinnate claw, with one lateral seta. Endopodite reduced to a small tubercle with two apical bare setae.

Maxilliped (fig. 3A): typically structured as in the genus, powerful and robust; syncoxa with distal row of spinules, one pinnate seta, and one socle bearing an apical pinnate seta. Basis very enlarged, medial margin with a row of very strong spinules. Endopodal claw very strong and curved, with three strong teeth and a long tip.

P1 (fig. 3B): coxa with medial row of spinules. Basis elongated, with one proximal, lateral pinnate seta, and one seta below the exopodite insertion. Exopodite represented by a small segment with two apical and three subapical setae. Endopodite two-segmented, long and strong, first segment bare, second segment with a row of spinules along the lateral margin and one seta on the distal corner. Terminal claw very long, sickle-shaped, armed with small spinules along the proximal third of the lateral margin, and strong spinules along the distal two-thirds of the margin.

P2 (fig. 3C): represented as a small semi-rectangular and unornamented process with one outer and 2 apical bipinnate setae, without differentiated intercoxal sclerite.

P3 (fig. 3D): unsegmented protopodite with outer seta and one pore. Exopodite two-segmented, proximal (compound) segment with two pinnate outer setae, distal segment with four apical pinnate setae, the second medialmost being the longest, and some spinules. Endopodite lacking.

P4 (fig. 3E): unsegmented protopodite with outer seta. Endopodite reduced to a small tubercle, fused to protopodite, armed with one long apical bare seta. Exopodite one-segmented, large, semi-ovate with one apical, three outer, and two medial setae.

P5 (fig. 3F): baseopodite enlarged and inserted laterally on the somite, with pinnate outer seta, medial lobe with one apical and three medial pinnate setae. Spinules on lateral and medial margins. Exopodite almost quadrangular, length/width ratio 1.40, with four apical pinnate setae of subequal length. Lateral and medial margins with spinules.

Ovigerous females carrying 8 to 10 large eggs.

Description of male. — Habitus as in fig. 1B. Body shape and ornamentation as in female. Length, measured from anterior margin of rostrum to posterior margin of caudal rami: 0.358–0.386 μm ($n = 5$; mean = 0.373 μm). Cephalothorax slightly shorter than half of the total body length. Anal operculum as in female. Caudal ramus (fig. 3G–H) similar to that of female but shorter. Spermatophore as in fig. 1B.

Rostrum, antenna, mouthparts (fig. 3I), maxilliped (fig. 4A): similar to those of female.

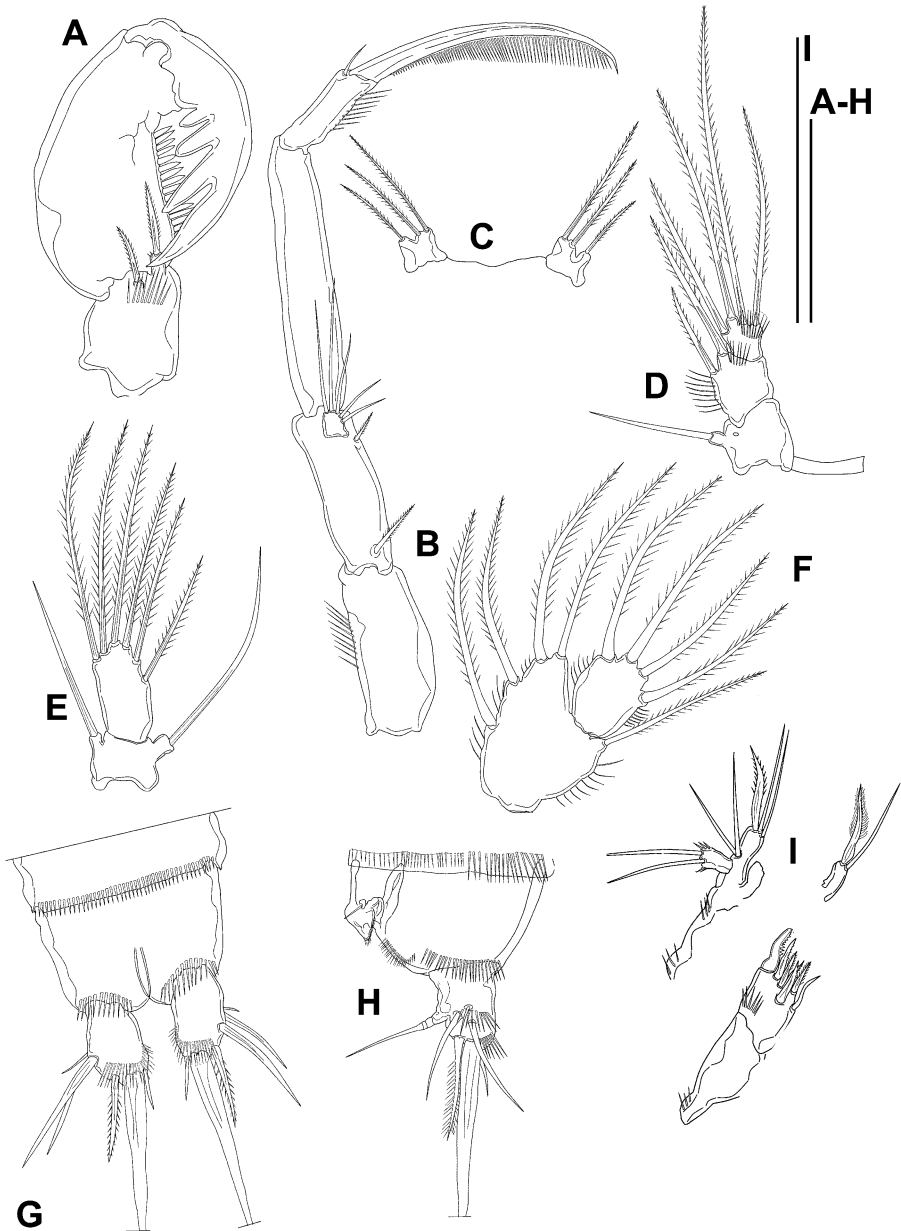


Fig. 3. *Carcinocaris dussarti* sp. nov. A–F, female; G–I, male. A, maxilliped; B, P1; C, P2; D, P3; E, P4; F, P5; G, anal somite, anal operculum, caudal rami, ventral view; H, anal somite, anal operculum, caudal rami, lateral view; I, maxillule (disarticulated). Scale bars: 250 μ m.

Antennule (fig. 4B): seven-segmented, subchirocer with geniculation between segments 5 and 6. First segment with one distal row of spinules and one short seta at distomedial corner. Second segment with 10 setae of different length. Third and fourth segments small, with five and four apical setae, respectively. Fifth segment enlarged, with a ventral tubercle bearing one aesthetasc and two long setae; three more long setae near the tubercle insertion; remaining segment ornamentation represented by two small unipinnate setae (arrowed in fig. 4B), one lamellar naked seta (asterisked in fig. 4B), four bare setae of the same length. Sixth segment bare. Seventh segment with eight setae, ending in a pointed tip.

P1 (fig. 4C): coxa with a transversal row of spinules; basis with same armature as in female, plus a longitudinal row of spinules.

P2 (fig. 4D): as in female but proportionally smaller, with intercoxal sclerite.

P3 (fig. 4E): with intercoxal sclerite larger than in female; protopodite with spinules, endopodite lacking. Exopodite two-segmented, first segment with two outer spines, proximal one much smaller than in female, distal one very strong. Last segment with two apical and two subapical pinnate setae, without spinules.

P4 (fig. 4F): protopodite with row of spinules near origin of outer seta; endopodite absent. Exopodite two-segmented; exp-1 with two outer pinnate setae; exp-2 armed with four distal pinnate setae of different length.

P5 (fig. 4G): extremely reduced, represented by a small tubercle with row of spinules at the confluence of the leg with the somite, armed with one apical bare seta.

P6 (fig. 4H): unornamented, represented by an asymmetrical lobe.

Variability. — The endopodal claw of one maxilliped of one male paratype with four teeth (fig. 4I) (the claw of the other maxilliped has three teeth); in the P3-exp2 of a second male paratype the innermost distal seta is particularly short (fig. 4J).

Etymology. — The new species name is dedicated to the memory of the late Professor Bernard Dussart. The specific epithet is a singular masculine genitive.

DISCUSSION

Carcinocaris dussarti sp. nov. displays almost all the apomorphies characterizing the genus *Carcinocaris*, which are the following: (1) maxilliped powerful and very well developed; basis with a row of strong spinules along the

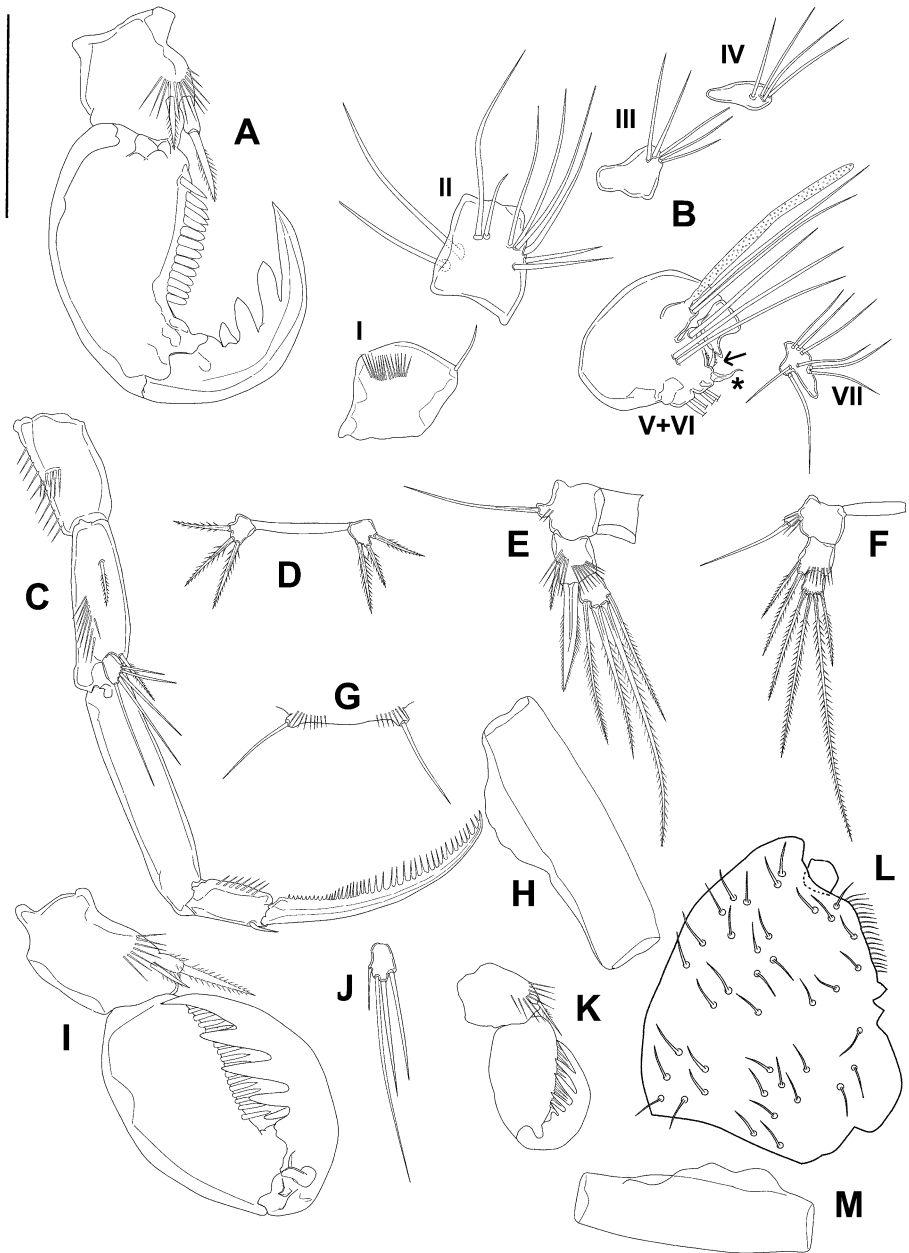


Fig. 4. *Carcinocaris dussarti* sp. nov. A–J male; K, stage III copepodite. *Carcinocaris serrichelata* Cottarelli, Bruno & Berera, 2006. L–M, male. A, maxilliped; B, antennule (segment numbers in Roman numerals); C, P1; D, P2; E, P3; F, P4; G, P5; H, P6; I, maxilliped (variability); J, P3-exp2 (variability); K, maxilliped; L, sensillar pattern of cephalothorax, lateral view; M, P6. Scale bars: A–K, M = 250 μm ; L = 100 μm .

inner margin which fits between the strong teeth of the stout claw, thus creating an uncommon and very efficient structure for grasping the host's hairs; (2) P1 exopodite reduced to a short segment, whereas it is two-segmented in virtually all other xanthid-associated laophontids; (3) P2 reduced to a small plate bearing one lateral seta and two distal setae on each side; (4) P3 without endopodite and with two-segmented exopodite in both sexes; (5) P4 very reduced, the exopodite of both sexes represented by one flattened segment (two-segmented only in the male of *C. dussarti* sp. nov. and in both sexes of *C. minipedia*) carrying six setae; the endopodite is present only in females where it is reduced to a tubercle with one long seta. The functional meaning of these characters and the phylogenetic relationships of the genus with other laophontids ecto-associated with crabs were already discussed in Cottarelli et al. (2006); the collection of a third species of *Carcinocaris* confirms how "the morphology of the new genus is the result of adaptation to their peculiar habitat which appears to be more advanced than in other xanthid-associated laophontids" (Cottarelli et al., 2006).

The genus *Carcinocaris* is so far represented by three species living as ecto-associates on xanthid crabs: *C. dussarti* sp. nov. and *C. serrichelata* distributed in the northern Pacific Ocean (Gulf of Siam Gulf and Philippine Sea, respectively), and *C. minipedia* in the western Atlantic (Brazilian coast of São Sebastião, State of São Paulo, Brazil, and coast near Fort Pierce, Florida, U.S.A.). The first two species live on crabs collected in the intertidal zone at low tide beneath coral and Madreporia fragments, whereas *C. minipedia* was collected from the setae of the carapace and from the eggs of crabs living in the mangrove area and in rock pools. As already discussed by Björnberg & Santos (2009), *C. minipedia* and *C. serrichelata* are very different, and in fact *C. dussarti* sp. nov. has the highest affinities with *C. serrichelata*, a conclusion based on a series of characters present only in the male, only in the female, or in both sexes. These characters are listed here together with the conditions observed in *C. minipedia* and in *C. serrichelata* (in parentheses), for the latter as observed in the paratypes from the type locality in our collection and in the specimens recently collected on North Pandan Island (see below); in fact, the various populations of *C. serrichelata* do not differ in any character. The comparison, then, is as follows: (1) cephalothorax, number of pores and sensilla from lateral view: *C. dussarti* sp. nov. 36 (*C. minipedia*: not reported; *C. serrichelata*: 39, fig. 4L); (2) female genital double-somite: P6 with one seta (*C. minipedia*: naked?; *C. serrichelata*: two setae); (3) caudal ramus: seven setae (*C. minipedia* and *C. serrichelata*: six setae); (4) A1 female: second

segment with nine setae (*C. minipedia*: six setae; *C. serrichelata*: eight setae); (5) A1 male: seven-segmented, setal formula: 1, 10, 5, 4, 12 + aest, 0, 8 (*C. minipedia*: five-segmented (segments 5-7 fused), 0, 8, 5, 1 + ae, 10 or 11; *C. serrichelata*: seven-segmented, 1, 8, 4, 3, 10 + aest, 0, 8); (6) maxilla, praecoxal endite: one small seta (same in *C. minipedia*; *C. serrichelata*: one tubercle with one apical seta); (7) maxilliped, endopodal claw with three teeth (*C. minipedia* and *C. serrichelata*: four teeth); (8) P2 with exopodite fused to basipodite to form a segment carrying three setae (*C. minipedia*: basis with articulated seta, one-segmented exopodite with three setae; *C. serrichelata*: as in *C. dussarti* sp. nov.); (9) P4; exopodite one-segmented in female and two-segmented in male (*C. minipedia*: two-segmented in both sexes; *C. serrichelata*: one-segmented in both sexes); (10) P5 female, exopodite rectangular (*C. minipedia*: rectangular; *C. serrichelata* roundish); P5 male, one seta (*C. minipedia*: two–four setae plus an articulated one; *C. serrichelata* one seta); (11) P6 male, asymmetrical lobe (*C. minipedia*: not described; *C. serrichelata* asymmetrical bilobate, fig. 4M). The most relevant differences between the northern Pacific species and the western Atlantic one are the segmentation of the male A1, the fusion of the P2 exopodite and basipodite, the segmentation of the P4 exopodite, and the armature of the male P5.

Other additional, smaller differences between *C. dussarti* sp. nov. and *C. serrichelata* exist as well (e.g., different lengths of some setae on legs 1-5 and of the caudal rami; different ratios of the length of P1 coxa, basis, and endopodite; length/width of the genital double somite of the female). It is interesting to observe the different armature of the female P6 in the two species: in fact, in other laophontids the presence of one or two setae on the P6 is used to discriminate between genus-groups (Fiers, 1991), whereas for *Carcinocaris* this character is species-specific. To this purpose, it would be interesting to know the structure of the female P6 in *C. minipedia*, but this appendage was not described by the authors

An interesting, conservative character in *Carcinocaris* is the number of teeth on the maxillipedal claw: we analysed several copepodids from C3 to C5, of all the populations of *C. serrichelata* including the one reported here (see below), and in all cases the endopodal claw had four teeth; the same occurs in the C3 of *C. dussarti* sp. nov. (fig. 4K) and in the C4 and C5 of *C. minipedia*. For *C. dussarti* sp. nov., thus, the moult to the adult stage implies a process of reductional development, which does not occur in *C. serrichelata*.

Sexual dimorphism in *C. dussarti* sp. nov. is more remarkable than in *C. serrichelata* and *C. minipedia* and expressed in: (1) a different armature of

P1; (2) an enlarged seta on the distal lateral corner of P3 exp-1 of males; (3) P4-exp one-segmented in the female and two-segmented in the male; (4) P4 endopodite represented by a tubercle fused to the basis, carrying a strong seta, in females, endopodite lacking in males; (5) P5 very well developed in females, inserted laterally on the somite, with large exopodite carrying four strong apical setae and four strong setae on the medial margin of the baseoendopod; P5 very reduced in males, represented by a tubercle with one seta.

As already recorded for *C. serrichelata* (cf. Cottarelli et al., 2006), we collected several specimens of *C. dussarti* sp. nov. in copulatory position, and in all couples the females were copepodites with the exception of one male attached to a metanauplius (fig. 1B), and the males were all found grasping their mates with their antennules. We also collected males of *C. serrichelata* grasping copepodites II and III. Fiers (1998) recorded adult males of decapod-associated laophontids (*Coullia* Hamond, 1973, *Laophonte setosa*-group, *Robustunguis* Fiers, 1992, *Xanthilaophonte* Fiers, 1991) grasping young copepodites (but not nauplii), and discussed this behaviour, not related to courtship, as meant "to avoid that the copepodids become separated from their host and loose contact with the initial population" (Fiers, 1998). Based on the published material on the mating behaviour of laophontids, we are not able to explain why adult males mate with naupliar stages. Copepodites of *Carcinocaris* have evolved peculiar features to enhance the success of coupling as already reported by Fiers (1998) for other decapod-related genera of laophontids. In fact, in *Carcinocaris* the copepodite stage IV of females develops an entirely different leg 4 exopodite than males; this modified leg is grasped by the male antennule during mating (Cottarelli et al., 2006).

The host xanthid crabs were collected only during low tide, and all specimens collected in dry conditions (low tide), from under coral fragments, carried several ecto-associated *C. dussarti* sp. nov., confirming that this species is a true xanthid-associate, as is *C. serrichelata*.

NOTES ON *CARCINOCARIS SERRICHELATA*

Carcinocaris serrichelata was so far known only from three stations at short distance from each other (maximum distance of 10 km) in the Eastern Mindoro Province (Philippines) (Cottarelli et al., 2006); on 14.ii.2005 we collected 29 specimens from a new population of *C. serrichelata* along a beach on the small island of North Pandan in Western Mindoro Province (Philippines) (12°50'22"N 120°45'24"E). Also in this case, specimens were collected from

xanthid crabs during low tide, on a bottom composed of large coral fragments and algal detritus. North Pandan Island is located at a short distance from the beach of Sablayan town and at a large distance (at least 80 km) from the previous collecting stations. This record thus widens the distribution range of the species. The examination of the new material allowed confirming the validity and constancy of the morphological characters of *C. serrichelata*, and a more detailed comparison with *C. dussarti* sp. nov.

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