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ENHYDROSOMA VERVOORTI SPEC. NOV., A NEW HARPACTICOID COPEPOD FROM INDIA (HARPACTICOIDA: CLETODIDAE)

by

F. FIERS

Fiers, F.: *Enhydrosoma vervoorti* spec. nov., a new harpacticoid copepod from India (Harpacticoida: Cletodidae)

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Two species from Sagar Island, India are reported: *Nitocra lacustris lacustris* (Schmankevitch, 1875) and *Enhydrosoma vervoorti* spec. nov. The latter is described and illustrated. Furthermore, the genus *Enhydrosoma* is discussed and *Enhydrosoma franklini* Thistle, 1980 is allocated to the genus *Enhydrosomella* Monard.

F. Fiers, Koninklijk Belgisch Instituut voor Natuurwetenschappen, recent Invertebrates Section, Vautierstraat 29, B-1040 Brussels, Belgium.

INTRODUCTION

During a stay at Leiden, Prof. W. Vervoort kindly offered me two vials with unidentified harpacticoid copepods. Both vials had been deposited in the collections of the Rijksmuseum van Natuurlijke Historie by Dr. A. Choudhury who collected the animals in the neighbourhood of Calcutta, India. The vials contained respectively one female of *Nitocra lacustris lacustris* Schmankevitch, 1875 and two males of an unknown species of the genus *Enhydrosoma* Boeck, 1872.

The specimens here dealt with are deposited in the collections of the Rijksmuseum van Natuurlijke Historie at Leiden. The specimens are preserved in alcohol. The dissected parts of the holotype of *Enhydrosoma vervoorti* spec. nov. are mounted in lactophenol, and the coverglass is sealed with glyceel. Drawings were made with the aid of a camera lucida, and abbreviations used in the text are according to Lang (1965).

Besides the description of this new species, I want to draw attention on the

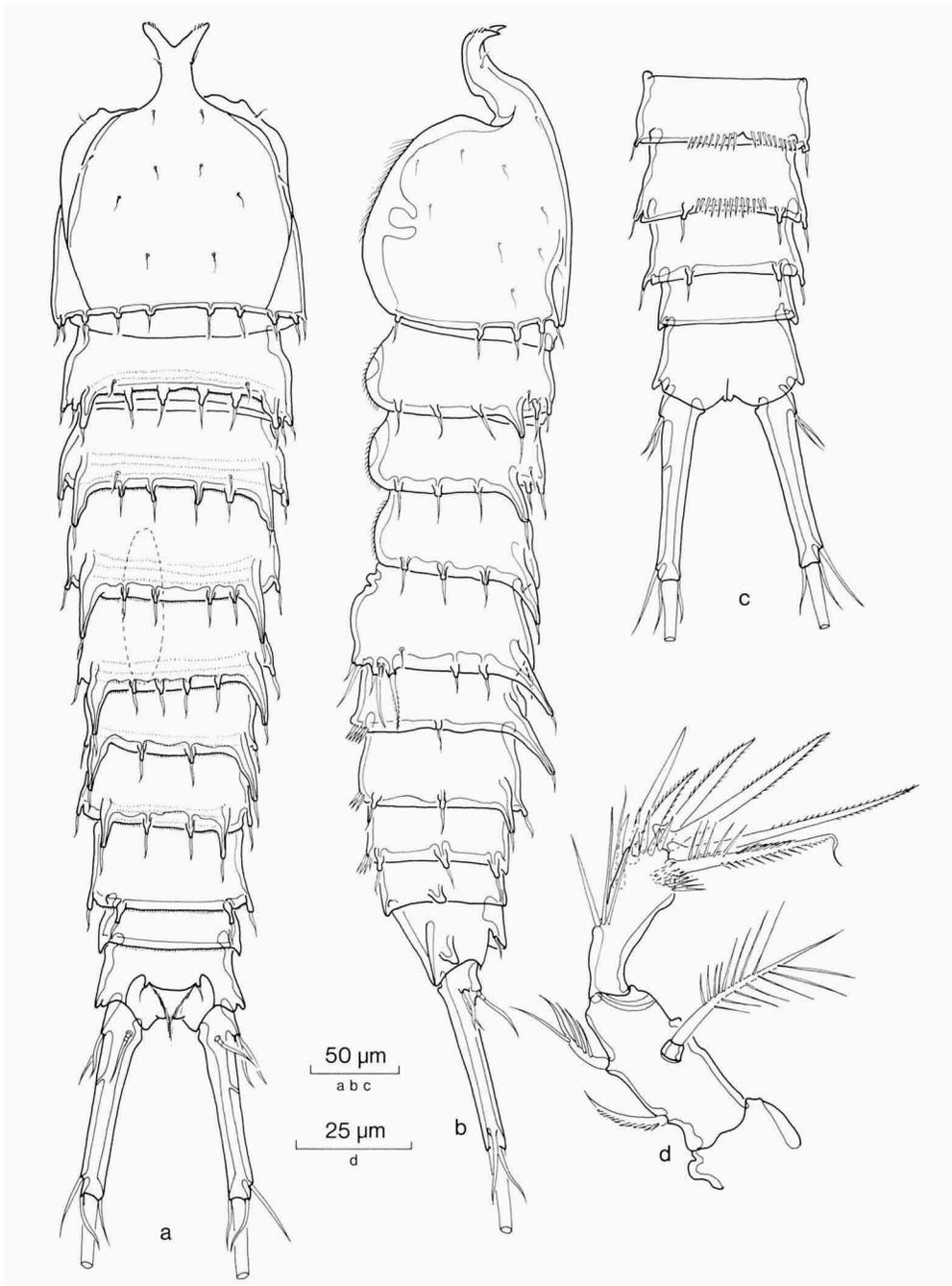


Fig. 1. *Enhydrosoma vervoorti* spec. nov., male (holotype): a, habitus in dorsal view; b, habitus in lateral view; c, abdomen in ventral view; d, antenna.

presence of two interesting type-species in the collection of the Rijksmuseum van Natuurlijke Historie (RMNH). In his outstanding work on the Levantine and Pontic harpacticoid copepods, Por (1964) mentioned that the type-material of the described animals as deposited in the collections of the Department of Zoology of the Hebrew University, Israel. However, one female paratype of *Asellopsis pennicilata* Por, 1964 and two paratypes of both sexes of *Laophonte cesareae* Por, 1964 were deposited by the author in the collections of the Rijksmuseum van Natuurlijke Historie at Leiden.

DESCRIPTION

Family Cletodidae Sars *sensu* Por

***Enhydrosoma vervoorti* spec. nov.**

Type-material. — The holotype is a dissected male mounted on three slides and labeled: RMNH Cop. 803 a, b and c. The paratype is preserved in alcohol and labeled: RMNH Cop. 803.

Type-locality. — Sagar Island in the estuary of the Hooghly River, south of Calcutta, India. Leg. Dr. A. Choudhury, 1981.

Diagnosis. — A species of the genus *Enhydrosoma* with a bifurcated rostrum; thoracic and abdominal somites with a dorso-lateral extension; sensorial setae on the somites implanted on a distinct socle; antenna with an allobasis bearing two lateral setae; antennal exopodite one-segmented and having one seta; second endopodal segment of P₁ with two setae and a spine; endopodite of the P₃ three-segmented; ultimate endopodal segment of P₄ with two setae and an outer spine; P₅ with a reduced baseoendopodal process and a fused exopodite.

Description. — Male (holotype). Habitus: (Fig. 1a, b): length, including rostrum and furcal rami: 650 μ m (paratype: 630 μ m); body almost cylindrical and only slightly tapering towards the anal segment; cephalothorax about one fourth of the body-length; lateral margins of the cephalothorax strongly curving towards the anterior margin; postero-dorsal margins of the cephalothorax, thoracic and abdominal somites with large processes, each bearing a sensorial seta; lateral processes on the thoracic and genital somites distinctly larger than the others; preanal and anal segments with a distinct lateral process but without a sensorial seta; anal operculum convex and smooth.

Rostrum: fused with the cephalothorax; strongly prominent and bifurcate; tips directed upwards.

Furcal rami: cylindrical and nearly five times as long as wide; two lateral setae and a dorsal one implanted in the anterior fifth; one lateral seta implanted sub-apically; outer apical and inner apical setae small, median apical seta well developed and smooth.

Integumental structures: rostral tips with a few minute teeth along the inner side of the bifurcation; thoracic and abdominal pleurotergites with two or three parallel rows of small teeth between the major lateral processes and along the posterior margin; ventral side of each genital segment furnished with a single row of strong spinules.

Antennule (Fig. 2a, d) chirocer and five-segmented; first, second and third

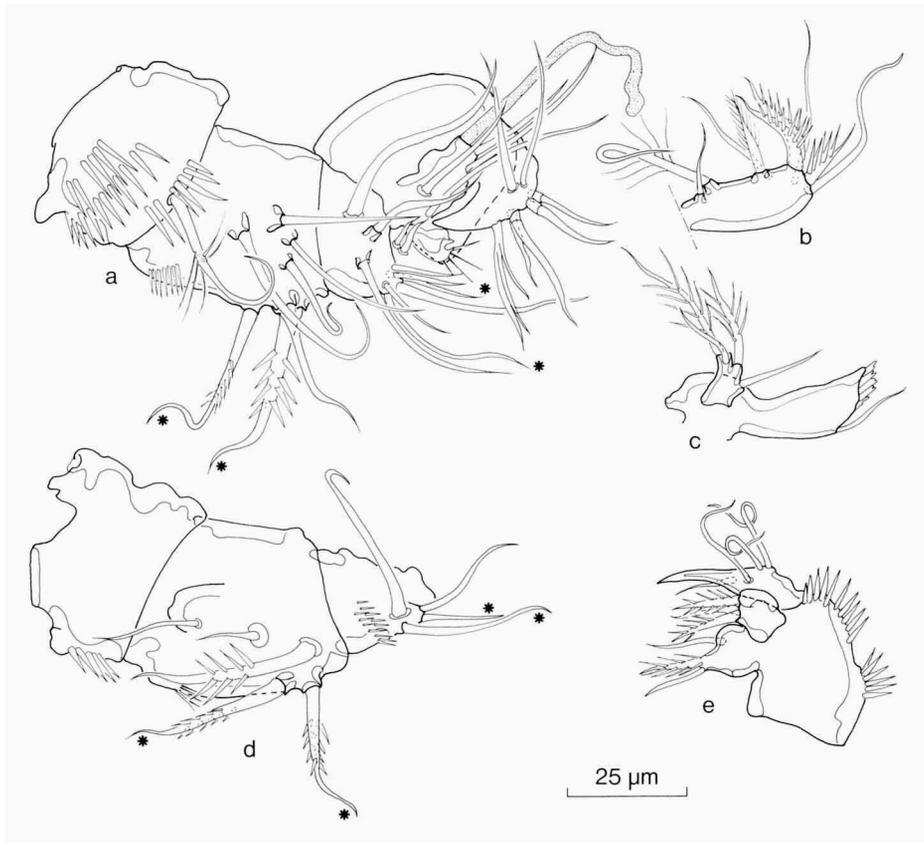


Fig. 2. *Enhydrosoma vervoorti* spec. nov., male (holotype): a, antennule in ventral view; b, basis of the maxillule; c, mandible; d, first three segments of the antennule in dorsal view; e, maxilla. The asterisks in a and d indicate the same setae in dorsal and ventral view.

segment with transversal rows of spinules; several spinulose setae on the second segment; ultimate segment hook-shaped.

Antenna (Fig. 1d) with an allobasis; outer margin with two barbed setae; exopodite represented as a small conical socle bearing a feathered seta; endopodal segment with two lateral spines, one lateral slender seta and five apical spines; integument of the endopodal segment with spinules.

Mandible (Fig. 2c): gnathobasis well-developed, having small teeth and a slender seta; mandibular palp rather small, bearing a median seta, two sub-apical setae and an apical one.

Maxillule (Fig. 2b): arthrite with five apical spines on the distal margin, and two feathered setae, implanted on the dorsal surface; coxa prolonged and furnished with one spine and one seta; basis with three armed spines and two smooth setae, implanted on the apical edge; exopodite and endopodite vestigial and each represented by two setae.

Maxilla (Fig. 2e) with two large endites both bearing three setae; syncoxa with strong spinules along the outer margin; basis hook-shaped and bearing four smooth setae representing the vestigial rami.

Maxilliped (Fig. 3c): basis distinctly longer than wide; inner and outer apical and outer proximal edge furnished with strong spinules; seta of the basis feathered and reaching beyond the endopodal segment; endopodite with slightly convex margins; inner margin set with a row of spinules; endopodal claw smooth and bearing a small proximal seta.

P₁ (Fig. 3a, Table 1): pre-coxa, coxa and basis with a smooth surface except for some small teeth near the implantation of the coxal seta and the articulation with the endopodite; exopodite three-segmented; outer exopodal margins with large spinules, inner margins with long hairs; endopodite two-segmented bearing two feathered inner setae and an outer spine on the ultimate segment; setae implanted on the basis, third exopodal segment and endopodite, set with strong setules.

P₂-P₄ (Figs. 3b, d and f respectively): pre-coxal fold not observed; surfaces of the coxae and the basis with transversal rows of strong spinules; exopodites three-segmented; all segments with spinules along the outer margin and with long hairs along the inner one; endopodite two-segmented in P₂ and P₄ and three-segmented in P₃; middle endopodal segment of P₃ extended in a large sharp apophysis; first endopodal segment of P₄ very small.

	P ₁	P ₂	P ₃	P ₄
Exo	0-0-022	0-0-022	0-0-122	0-0-122
End	0-120	0-020	0-0-020	0-020

Table 1: Chaetotaxy of the male of *Enhydrosoma vervoorti* spec. nov.

P₅ (Fig. 3e): baseoendopodite fused with the supporting somite; baseoendopodal process absent but represented by three setae; exopodite fused with the baseoendopodite and bearing three apical setae and an inner sub-apical one; outer seta implanted on a distinct process.

P₆ (Fig. 1c) situated near the middle of the ventral posterior margin of genital segment; represented as a small depression covered by strong spinules; no socles or setae present.

Female: Unknown.

Etymology. — Named in honour of Dr. W. Vervoort (Leiden).

Discussion. — *Enhydrosoma vervoorti* spec. nov. undoubtedly is closely related with *Enhydrosoma bifurcarostratum* Shen and Tai, 1965. Although the females of *E. vervoorti* spec. nov. are unknown, differences between the males clearly discriminate both species.

In *E. vervoorti* spec. nov. the inner apical seta of the second endopodal segment of the P₁ is as long as the median one. The P₁ endopodal segment of *E. bifurcarostratum* shows a short seta which is even smaller than the outer spine on the same segment. Furthermore, *E. bifurcarostratum* bears only two setae (an inner short one and an apical long one) on the endopodite of the P₄. In *E. vervoorti* spec. nov. this segment has two setae and an additional strong outer spine.

E. vervoorti spec. nov. also differs from *E. bifurcarostratum* in the shape and the chaetotaxy of the P₅. *E. vervoorti* spec. nov. has a fused exopodal process and an entirely reduced baseoendopodite, represented as three setae. In *E. bifurcarostratum* the exopodite of the male P₅ articulates with the supporting segment while the baseoendopodite is distinctly present as a squarish process.

Both species have also a different chaetotaxy on the exopodite of the male P₅. In *E. bifurcarostratum* this ramus bears three setae while *E. vervoorti* spec. nov. has three apical ones and a smooth seta implanted along the inner margin of the exopodite.

Within the genus, the sister-species *E. bifurcarostratum* and *E. vervoorti* spec. nov. are close to *E. bucholtzi* (Boeck, 1872) and *E. curvirostre* (T. Scott, 1894). These four species share some important characteristics as the reduced exopodal segment of the antenna, bearing a single seta, and the shape of the sexual characteristics of the P₃, P₅ and furcal rami. If these features are compared with those of other species, the homogeneity of the actual genus *Enhydrosoma* becomes doubtful. In contrast with other authors, who tried to find a proper generic diagnosis. I am convinced that the genus *Enhydrosoma* is a heterogeneous group of several independent evolutionary lines. Unfortunately, many species are insufficiently known so that a meaningful redefinition of the genus based upon the available literature is not possible.

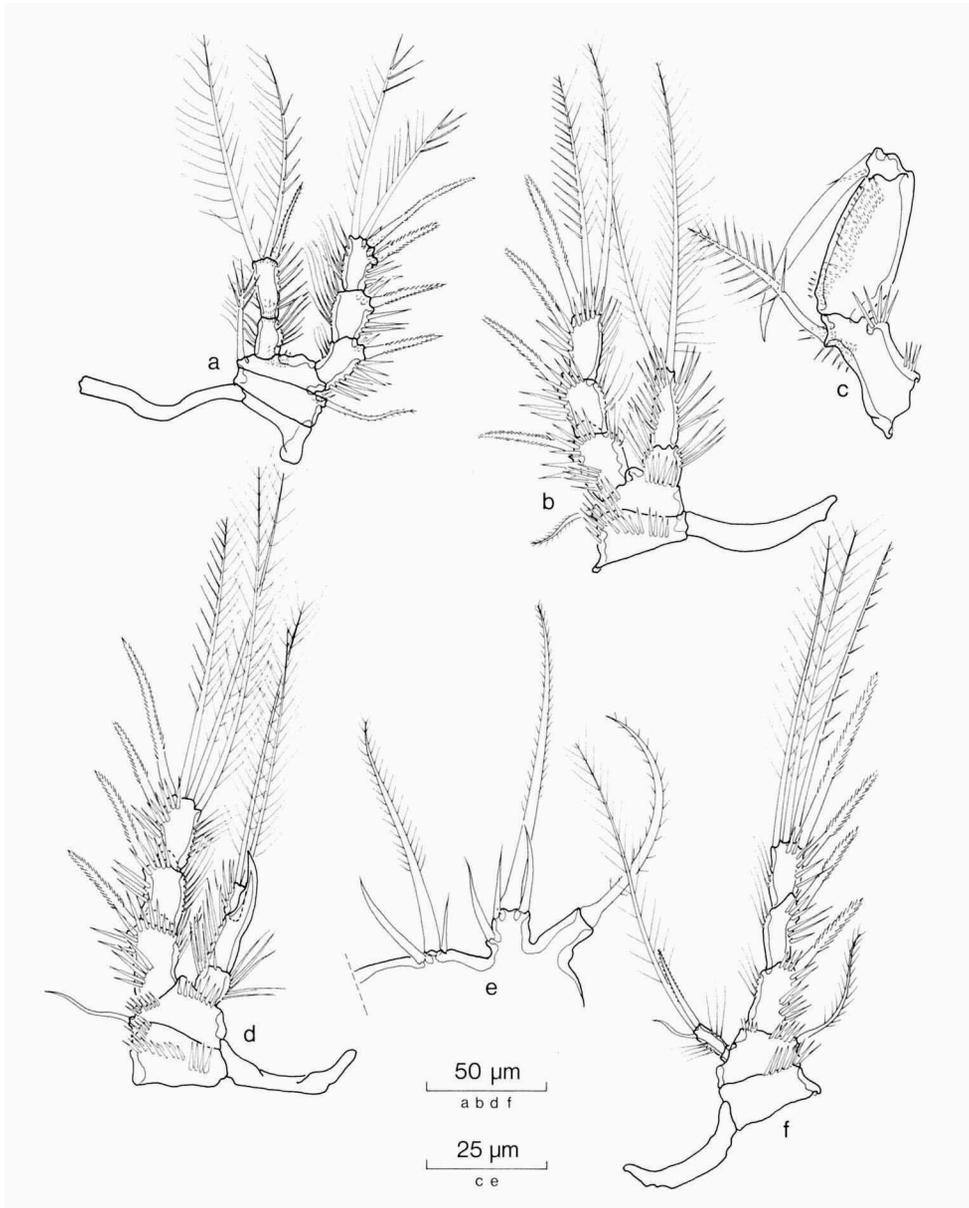


Fig. 3. *Enhydrosoma vervoorti* spec. nov., male (holotype): a, P₁; b, P₂; c, maxilliped; d, P₃; e, P₄; f, P₅.

However, serious questions about the generic designation of *E. franklini* Thistle, 1980 arise. In contrast with the designation by Thistle (1980) and Wells (1983), it seems reasonable to exclude this species from the genus *Enhydrosoma* and to allocate it to the genus *Enhydrosomella* Monard, 1935. *Enhydrosomella* was originally erected for *E. staufferi* Monard, 1935 which showed a peculiar fusion of the first and second exopodal segments of P₂-P₄. Since the description of *Enhydrosomella staufferi* Monard, 1935 three more species were added to this genus: *E. setiensis* Raibaut, 1965, *E. monardi* Por, 1967 and *E. kuehnemanni* Pallares, 1968.

Besides the typical fusion of the exopodal segments, all those species show a more or less strongly developed outer baseoendopodal process in the female P₅. In the male specimens the most apical edge of the baseoendopodite is strongly prominent and spine-shaped. Furthermore, the exopodal outer margin of the P₅ is transformed in all known species to a more or less strong outer structure. Only *E. kuehnemanni* seems to be an exception, as far as the male P₅ is concerned. However, the fused exopodites of P₂-P₄ and the characteristic structures on the female P₅ undoubtedly demonstrate that *E. kuehnemanni* is a true *Enhydrosomella*.

Although the line of fusion between the first and second exopodal segments of P₂-P₄ of *E. franklini* is still obvious, this species (see also Wells, 1983) shows the typical modifications in the structure of the male and female P₅ as seen in the other species of the genus *Enhydrosomella*.

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