

Description of laboratory reared first zoea of *Hexapanopeus manningi* Sankarankutty and Ferreira, 2000 (Decapoda: Xanthidae).

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Abstract

Hexapanopeus manningi a xanthid crab known so far only from its type locality, is common in the estuaries of the State of Rio Grande do Norte, Brazil (Sankarankutty and Ferreira, 2000). It inhabits from the littoral to shallow sublittoral regions where the substratum is covered with stones and broken shells. The first zoeae of the species were obtained in the laboratory from berried females maintained in aquaria as well as from *in vitro* experiments (Sankarankutty *et al.*, 1999a, 1999b).

A detailed description of the larva and a comparison of the morphological features with related species are presented here.

Key words: *Hexapanopeus manningi*, Zoea I, Description

Introduction

A total of six species of *Hexapanopeus* Rathbun are known from the Brazilian waters: *H. angustifrons* (Benedict and Rathbun), *H. caribbaeus* (Stimpson), *H. heblingi* Rodrigues and Loyola & Silva, *H. paulensis* Rathbun, *H. schmitti* Rathbun and *H. manningi* Sankarankutty and Ferreira (Sankarankutty and Ferreira, 2000). *Hexapanopeus heblingi* and *H. manningi* are so far known only from their type localities. Of these six species, the description of zoeal stages of *H. angustifrons* by Costlow and Bookhout (1966), *H. paulensis* by Fransozo *et al.* (1990) and *H. schmitti* by Bakker *et al.* (1989) are so far known. Though the identification and description of *H. heblingi* were based on the adults reared from larvae in the laboratory (Rodrigues and Silva, 1998), detailed description of its larvae is still not available. The present study describes the first zoea of *H. manningi* reared in the laboratory.

Material and Methods

The adult berried females were obtained from the sublittoral region of one of the three estuaries under investigation (Galinhos, Potengi and Guaraira in the State of Rio Grande do Norte, Brazil) using a dredge and by hand picking from the intertidal region during the low tide. A selected number of live berried females were brought to the laboratory and maintained in aquaria to obtain the larvae. The larvae studied for the present account were from the berried females collected from the estuary of Potengi on October 24, 2000 which liberated the larvae after two days.

To study the viability of culturing eggs *in vitro*, an incubator was also used (Sankarankutty *et al.*, 1991, 1999b). This study is limited to a detailed description of the first zoea stage.

Measurements taken were: (a) distance between tips of dorsal and rostral spines (TT); (b) carapace length, from between eyes to postero-lateral carapace margin of zoea (CL); (c) dorsal spine length (DSL); (d) rostral length (RSL).

Hexapanopeus manningi Sankarankutty and Ferreira

First Zoea (Fig. 1)

Size: DSL, 0.67 (0.62-0.70 mm); RSL, 0.79-0.88mm
 CL, 0.38 (0.35-0.42mm); TT, 1.85 (1.78-1.90mm)

Carapace (**Fig. 1: 1, 2**): Dorsal spine stout, almost straight. Rostral spine slightly curved anteriorly and shorter than spinous process of antenna. A pair of postero-lateral setules present. A pair of minute crests and vertical ridges present on posterior part of carapace.

Eyes (**Fig. 1: 1, 2**): Partially sessile.

Antennule (**Fig. 1: 3**): Uniramous with one short seta and two long aesthetascs.

Antenna (**Fig. 1: 4**): Spinous process a little longer than rostral spine of carapace, with spinules of varying size on distal 1/3 length. Exopod minute with a fine terminal spinule

Mandible (**Fig. 1: 5**): Incisor and molar process developed; mandibular palp absent.

Maxillule (**Fig. 1: 6**): Coxal endite with 6 stout setae and basal endite with 5 stout and 1 simple seta. Endopod two-segmented, proximal segment with one and distal segment with 6 setae.

Maxilla (**Fig. 1: 7**): Proximal and distal lobes of coxal endites each with 4 setae. Proximal and distal lobes of basal endites each with 1+3 setae. Proximal and distal lobes of endopod with 1+2 and 1+4 setae. Scaphognathite (exopod) with 4 densely plumose setae and 1 long and thick densely plumose posterior projection.

First maxilliped (**Fig. 1: 8**): Coxa with a seta on the distal inner corner. Basis with 2,2,3,3 setae. Endopod 5-segmented with 3,2,1,2,1+4 setae. Exopod with 4 natatory setae.

Second maxilliped (**Fig. 1: 9**): Coxa without a seta. Basis with 1,1,1,1 setae. Endopod 3-segmented with 1,1,2+3 setae. Exopod with 4 natatory setae.

Abdomen (**Fig. 1: 1, 10**): Five somites plus a telson. Second and third somites with a pair of dorso-lateral processes. Postero-lateral margins of 2nd – 5th somites with obtuse angle. Posterior margin of 2nd – 5th somites with a pair of minute setae.

Telson (**Fig. 1: 1, 10**): Forked with 1 lateral spine and 1 dorsal articulate spine; lateral spine about a half of dorsal spine. Distal end of fork strongly curved dorsally. Median posterior margin straight or slightly convex, armed with 3 pairs of subequal setae.

Discussion

The first zoea of *H. manningi* has a strong resemblance to that of *H. schmitti* (Table I) in the absence of lateral spine on the carapace, presence of setules near the posterior margin of abdominal segments 2–5 and equal number of aesthetascs and spine on the antenna. However, certain morphological features, such as the projection on the posterior part of carapace described here and spiny distal end of antenna are unique to the larva of *H. manningi*.

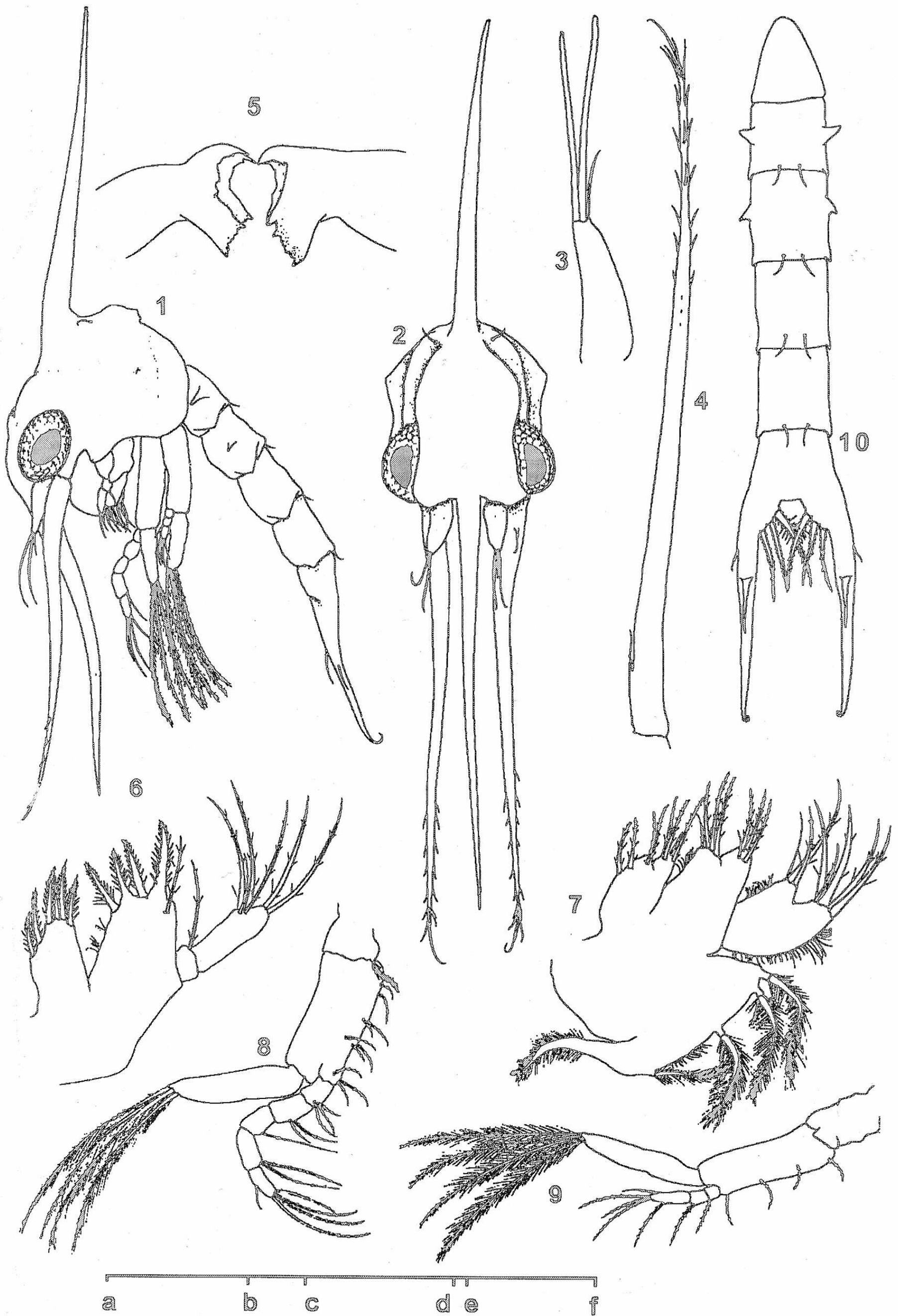


Fig 1: *Hexapanopeus manningi*.- First zoea. 1, Lateral view (ab); 2., frontal view (ab); 3.antennule (ad); 4, antenna ((ac); 5, mandible (ae); 6, maxillae (af); 7, maxilla (af); 8, first maxilliped (ac); 9, second maxilliped (ac); 10, abdomen and telson (ac). Scale = 0.4 mm.

Table 1: Comparison of morphology of the first zoea of *Hexapanopeus manningi* with larvae of species of *Hexapanopeus* occurring in Brazil (Adapted from Fransozo *et al.*, 1990).

	<i>H. angustifrons</i> ¹	<i>H. schmitti</i> ²	<i>H. paulensis</i> ³	<i>H. manningi</i> ⁴
Carapace:				
Lateral spine	Present	Absent	Present	Absent
Antennule: aesthetascs, spine	4, 1	2, 1	3, 1	2, 1
Antenna:				
Spinulate part of spinous process (Distal).	Unarmed	Unarmed	Unarmed	1/3 armed
Antennal exopod	Minute	Absent	Minute	Minute
Maxillule:				
setae on endopod	1, 6	1, 5	1, 6	1, 6
Maxilla:				
plumose setae on scaphognathite	4, 1	4, 1	4, 1	4, 1
Maxilliped 1:				
setae on basis	4?	10	10	10
setae on endopod	3,2,1,2,5	3,2,1,2,5	3,2,1,2,5	3,2,1,2,5
Maxilliped 2:				
setae on basis	3?	2	4	4
setae on endopod	1,1,5	1,0,4	1,1,5	1,1,5
Abdominal somite:				
setule on dorsal posterior margin of 2-5 somites	No setule on posterior margin of 2 - 5 somites	A pair of setules on posterior margin of 2 - 5 somites	No setule on posterior margin of 2 - 5 somites	A pair of setules on posterior margin of 2 - 5 somites
Telson:				
dorsal spine	0	1	0	1
lateral spine	0	1	0	1

1) Costlow and Bookhout (1966); 2) Bakker *et al.*, (1989); 3) Fransozo *et al.* (1990); 4) Present study.

Acknowledgements

The junior authors (C.S. and I.M.C.C.) are thankful to the National Research Council for the Development of Science and Technology (CNPq), Brazil for the award of fellowships and former for the support given to him to participate and present this study at the Fifth International Crustacean Congress, Melbourne, Australia.

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Received: 23th Aug 2001

Accepted: 14th Apr 2002