

First record of *Homolodromia monstrosa* Martin, Christiansen & Trautwein, 2001 (Homolodromiidae) and *Trichopeltarion nobile* A. Milne-Edwards, 1880 (Atelecyclidae) from the Southwestern Atlantic

Tavares, C. R. and Young¹, P. S.

Museu Nacional/UFRJ, Depto de Invertebrados 20940-040 – Rio de Janeiro, RJ. e-mail: ctavares@mn.ufrj.br

¹*in memoriam*

Abstract

Homolodromia monstrosa Martin, Christiansen & Trautwein, 2001 (Crustacea, Brachyura, Homolodromiidae) and *Trichopeltarion nobile* A. Milne-Edwards, 1880 (Atelecyclidae) are recorded for the first time, from the Southwestern Atlantic. Variation between the new specimens and the original descriptions is discussed.

Key words: Brachyura, *Homolodromia*, *Trichopeltarion*, taxonomy, deep-sea.

Introduction

Homolodromiidae Alcock, 1900 is represented by a group of bathyal basal crabs encompassing two genera. *Homolodromia* A. Milne-Edwards, 1880, has five extant and two fossil species, distributed in the Indian and Pacific oceans. Only one species has been recorded from the Atlantic Ocean, *H. paradoxa* A. Milne-Edwards, 1880, recorded from Florida and Suriname. However, Guinot (1993) observed some differences between the Caribbean specimens, suggesting that there may be more than one species. Subsequently, Martin *et al.* (2001) recognized another species: *H. monstrosa*, off Guyana and Suriname, previously identified as *H. paradoxa* by Takeda (1983).

Atelecyclidae Ortmann, 1893 encompasses a small group of deep-water crabs composed of six genera. Only *Peltarion* Jacquinet, 1847 has been recorded from Brazil: *Peltarion spinulosum* (White, 1843) occurring off Rio Grande do Sul state (Melo, 1990). *Trichopeltarion* A. Milne-Edwards, 1880 encompasses seven fossils and 13 extant species, distributed in the Indian and mostly in the Pacific Ocean. Only two species have been recorded from the Atlantic Ocean: *Trichopeltarion intensi* Crosnier, 1981, from off Africa, and *T. nobile* from Gulf of Mexico and Caribbean Sea (Salva and Feldmann, 2001).

Deep sea dredgings executed by N. O. “Thalassa” during the Revizee Program sampled two species of Homolodromiidae and Atelecyclidae. This study records *H. monstrosa* and *T. nobile* for the first time from the Brazilian coast.

Abbreviations: cl – carapace length; cw – carapace width; stn – station; MNRJ – Museu Nacional, Rio de Janeiro.

Results

Homolodromia A. Milne-Edwards, 1880

Homolodromia monstrosa Martin, Christiansen & Trautwein, 2001

(Figs 1, 2)

Homolodromia paradoxa; Takeda, 1983: 112. 1 fig; Guinot, 1995: 192 (not *Homolodromia paradoxa* A. Milne-Edwards, 1880).

Homolodromia monstrosa Martin, Christiansen & Trautwein, 2001: 319, figs 4-7.

Material examined: Revizee Program, N.O. “Thalassa”, stn. E - 0517, 13°22' 173" S, 38°36'566" W to 13°24'968" S, 38°38'277" W, 750m, one male, cl: 24.7mm, cw: 22.2mm, MNRJ 15033.

Diagnosis: Carapace inflated, covered by simple setae of distinct sizes, uniformly distributed. Postorbital teeth slightly longer than rostrals. Pereopod 4 and 5 with dactyli with six and five robust setae, respectively; seven and eight small proximal robust setae on fixed finger, respectively. Pleopod 1 greatly enlarged and setose, with a groove where appendix masculina of pleopod 2 fits.

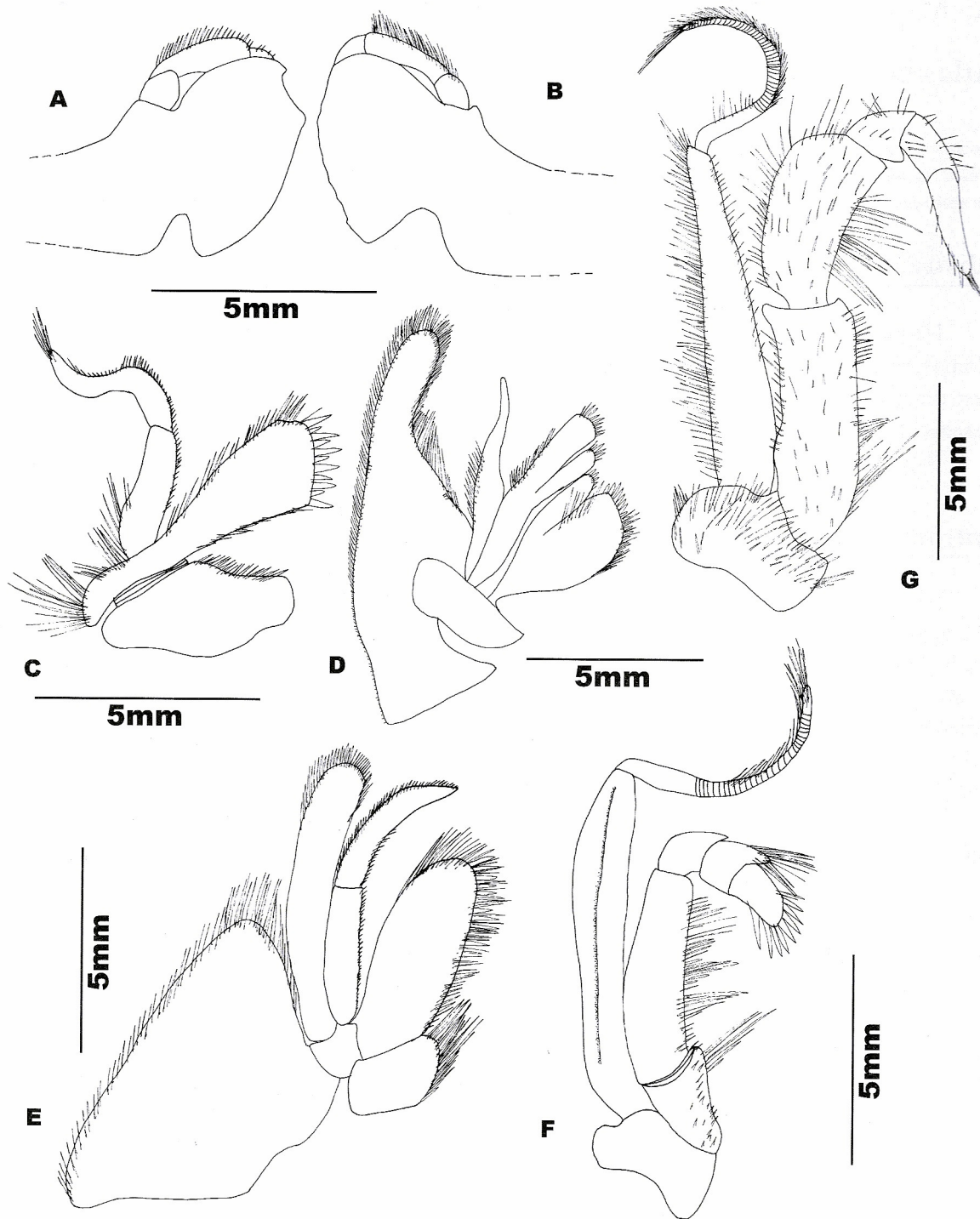


Figure 1: *H. monstrosa* a) right mandible; b) left mandible; c) right maxilla 1; d) right maxilla 2; e) right maxilliped 1; f) right maxilliped 2; g) right maxilliped 3.

Nauplius

Description: Carapace inflated, covered by simple setae of distinct sizes, uniformly distributed (Fig. 2a). Dorsal surface with cervical groove almost half of its length, posteriorly with a branchiocardiac groove (Fig. 2a). Gastric fossete at same level of cervical groove (Fig. 2a). Anterior region with rostral

teeth curved upwards; postorbital teeth slightly longer than rostrals, curved posteriorly (Fig. 2a). Eyes small, slightly pigmented; eyestalk setose. Antennae 1 and 2 setose, placed in same concavity, their first two articles protecting ventrally the eyestalk. Right mandible with incisor process delimited by two teeth; molar process almost smooth (Fig. 1a). Left mandible with incisor and molar process inconspicuously defined, reduced to a small carinated line (Fig. 1b). Palp with three setose articles (Figs. 1a, 1b). Basal endite of maxilla 1 with slender setae and distal endite with slender and robust setae; endopod setose (Fig. 1c). Maxilla 2 with two bilobed endites covered by slender and robust setae; endopod and scaphognathite present (Fig. 1d). Maxilliped 1 with oval setose endite; endopod and exopod setose, approximately of the same length (Fig. 1e). Endopod of Maxilliped 2 with six setose articles; article 1 with robust seta; exopod with reduced groove and terminal setose flagellum (Fig. 1f). Endopod of maxilliped 3 with seven setose articles; exopod setose ending in flagellum (Fig. 1g). Chelipeds equal in size; fixed finger distally bifid receiving tip of dactylus, with a row of seven teeth on cutting edge; dactylus without teeth (Fig. 2b); carpus and merus with distodorsal teeth. Appendages covered by simple setae of two different sizes and with some plumose setae, except for dactylus that lacks plumose setae. Pereopods 2 and 3 with dactyli strongly curved inwards. Pereopod 4 with dactylus curved posteriorly and six robust setae along its length; seven small proximal robust setae on fixed finger (Fig. 2c); one distal robust seta on propodus and on merus. Pereopod 5 with dactylus curved anteriorly and five robust setae along its length; eight small proximal robust setae on fixed finger (Fig. 2d); one distal robust seta on propodus and on carpus; large tooth turned to sternum on each coxa. Sternum with long setae. Abdomen largely covering sternum. Pleopod 1 enlarged and setose, with a groove where appendix masculina of pleopod 2 fits. Telson long and wide.

Remarks - One of the principal differences between *H. monstrosa* and *H. paradoxa* is the greater size of the former. But the specimen examined herein has measurements that are greater than in *H. paradoxa* holotype, although not as large as in *H. monstrosa* female holotype and male (Table I). Yet, it is easy to distinguish between this species and *H. paradoxa*, using the same characteristics that Martin *et al.* (2001) used to distinguish between *H. paradoxa* and *H. monstrosa*, like *H. monstrosa* having very small eyestalks and corneas relative to body size, cornea weakly pigmented, a slightly more complex armature on the first pleopod, a blunt lateral spine that does not bifurcate distally, and lacking spines on the anterolateral carapace border between rostral tooth and the anterolateral tooth. This specimen presents only simple setae covering carapace and pereopods, like the specimens analysed by Martin *et al.* (2001) and specimens of *H. paradoxa* analysed by Martin *et al.* (2001) and Guinot (1995); this fact reinforces that taxonomy of this group should be reexamined if sexual dimorphism is more common than was previously thought (Martin *et al.*, 2001). Some differences are observed between our specimen and the original description of *H. monstrosa* (Martin *et al.*, 2001). In the original description, the dactylus of the chelipeds has only one seta, but in the examined specimen there are few setae, not only one. Martin *et al.* (2001) observed that dactyli of pereopods 2 and 3 are setose and spinulose, and our specimen has them only setose. They also observed an acute tooth on the distodorsal border of meri of pereopods 2 and 3, but this tooth is present only on the left pereopod 2.

Distribution: Western Atlantic, off Guyana and Suriname; Brazil, Bahia (Takeda, 1983; Guinot, 1995; Martin *et al.*, 2001; new record).

Genus *Trichopeltarion* A. Milne-Edwards, 1880

Trichopeltarion nobile A. Milne-Edwards, 1880

(Figs 3-4)

Trichopeltarion nobile A. Milne-Edwards, 1880: 20, pl. 2; Rathbun, 1930: 168, pl. 73; Salva & Feldmann, 2001: 34, figs. 17 b, 18.

Material examined: Revizee Program, N.O. "Thalassa", stn. D - 0538, 13°40'741"S, 38°71'601"W, 450-500m, one female, cl: 81.2mm, cw: 85.4mm, MNRJ 14086.

Table I: Comparison of measurements of selected features of *H. paradoxa* (male holotype) e *H. monstrosa* (female holotype, photographed male, and specimen examined herein), modified from Martin *et al.* (2001). All measurements are in mm.

	<i>H. paradoxa</i> Male Holotype	<i>H. monstrosa</i> Female Holotype	<i>H. monstrosa</i> Photographed male	<i>H. monstrosa</i> Examined specimen
Carapace length	15.7	35.5	38.6	24.7
Carapace width	12.4	32.4	33.5	22.2
Rostral horns (distance between tips)	2.1	2.2	3.7	2.1
AL teeth of carapace (distance between tips)	11.7	23.6	28.2	19.5
Right cheliped				
Length of dactylus	5.7	12.2	14.8	9.3
Length of propodus	11.7	25.7	32.6	12.0
Height of propodus	2.9	6.4	7.4	3.6
Left Cheliped				
Length of dactylus	5.4	-	15.1	8.8
Length of propodus	12.2	-	30.2	13.3
Height of propodus	3.0	-	7.7	3.4
Pereopod 2 (left side)				
Length of dactylus	13.5	-	25.6	23.7
Length of propodus	14.7	29.6	40.5	27.4
Height of propodus	7.8	18.4	22.5	13.4
Pereopod 4 (right side)				
Length of dactylus	2.5	-	5.1	4.8
Length of propodus	6.1	-	16.3	10.1
Height of propodus	5.2	-	13.2	8.5
Telson length	7.6	28.8	20.9	13.3
Telson width	4.5	22.8	12.8	8.2

Diagnosis: Carapace wider than long, covered by teeth and small setae. Three rostral teeth of approximately same size, median tooth the smallest. Branchiocardiac furrows deep.

Description: Carapace wider than long, totally covered by short setae and some truncate or acute teeth, aggregated in small groups especially on gastric region and near lateral teeth; branchiocardiac furrows deep (Fig. 4a); three rostral teeth with median tooth little smaller, laterals with tips turned outwards (Fig. 4b); orbits formed by four teeth, these teeth with marginal denticles; three dorsal teeth, one largest preorbital, one near lateral margin and one between (Fig. 4a); one suborbital tooth on ventral surface (Fig. 4c). Antennae 1 with three movable basal articles and two flagella arising from article 3, inner flagellum smaller than outer. Antennae 2 with fixed basal article plus four movable articles. Mandible with incisor and molar processes inconspicuous, with setose palp three-articulate; right mandible with small median projection (Figs. 3a, 3b). Maxilla 1 with setose endopod biarticulate and two endites; endites with robust setae on margin (Fig. 3c). Endopod of maxilla 2 with small apical tooth and setae on margin; two bilobed endites with setae on margin (Fig. 3d). Scaphognathite setose on margin. Maxilliped 1 with setose endopod; exopod slightly more than half of endopod length, ending in a flagellum, and with two endites; basal and distal endites almost oval, robust setae on margin (Fig. 3e). Maxilliped 2 with setose endopod, and setose

exopod of approximately same size of endopod, ending in flagellum (Fig. 3f). Maxilliped 3 endopod with ischium, merus and palp setose; exopod with setae, ending in a flagellum (Fig. 3g).

Remarks - Some differences have been observed between our specimen and the description of Rathbun (1930). The median carina on the carapace is not prominent, and the anterolateral teeth are not bifurcate or trifurcate, but they have some denticles on their margins.

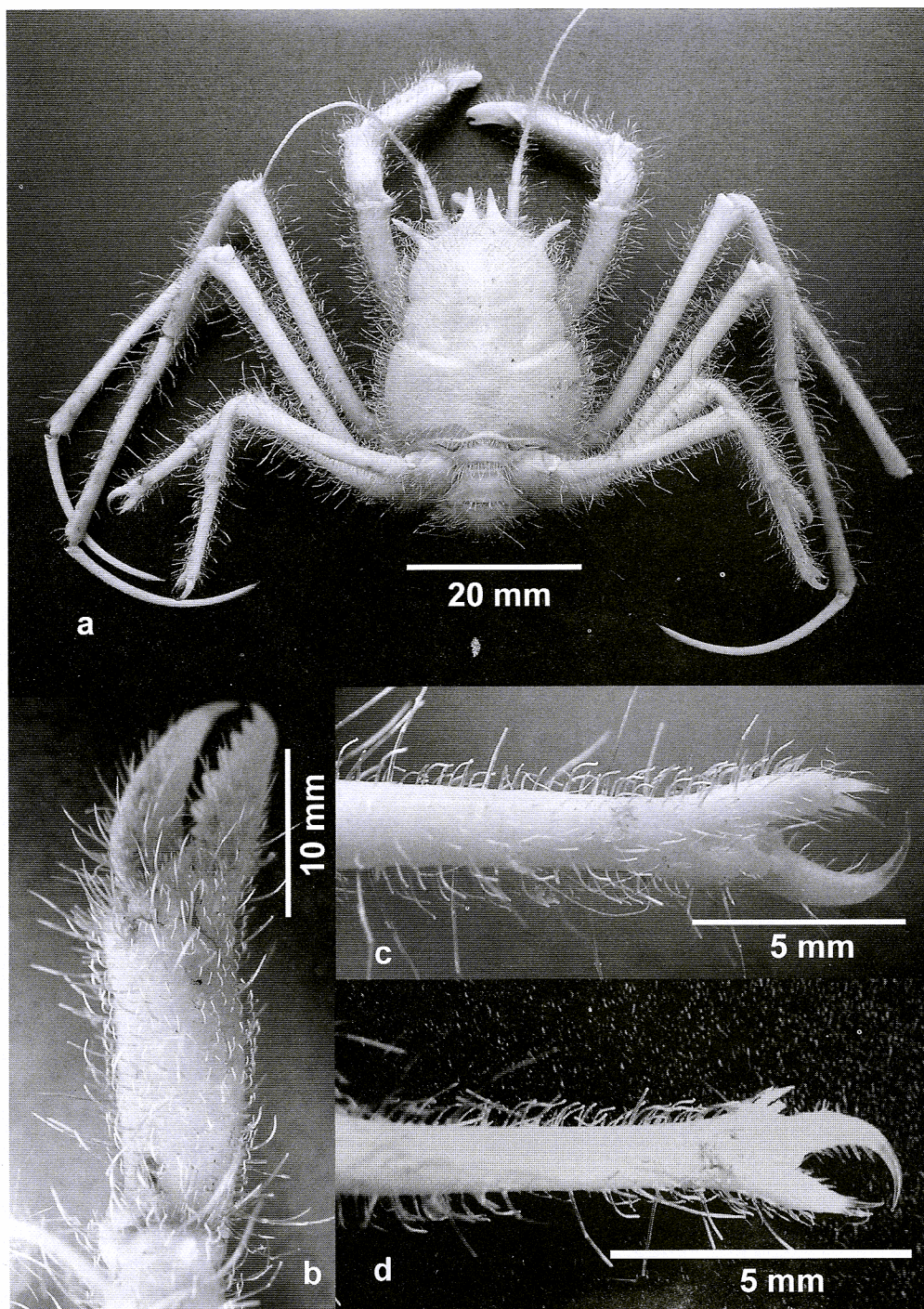


Figure 2: *Homolodromia monstrosa* Martin, Christiansen & Trautwein, 2001. a) carapace, dorsal view; b) right cheliped; c) pereopod 4, left side; d) pereopod 5, left side.

Distribution - Western Atlantic, off St. Lucia, Caribbean Sea (Holotype); Gulf of Mexico; (Rathbun, 1930; Salva and Feldmann, 2001). Brazil - Bahia; (new record).

General remarks: With the new samples collected by the Revizee Program in deep waters, between 400 and 2200 meters, *H. monstrosa* and *T. nobile* have their meridional distribution extended. With intensive deep-sea dredgings along the Brazilian coast, several species of crustaceans previously recorded only from the Caribbean region are being recorded from the southwestern Atlantic, e. g.: Nephropidae (Tavares and Young, 2002), Lithodidae (Young and Serejo, 2002); Portunidae (Tavares, 2003) and Glyphocrangonidae (Komai, 2004).

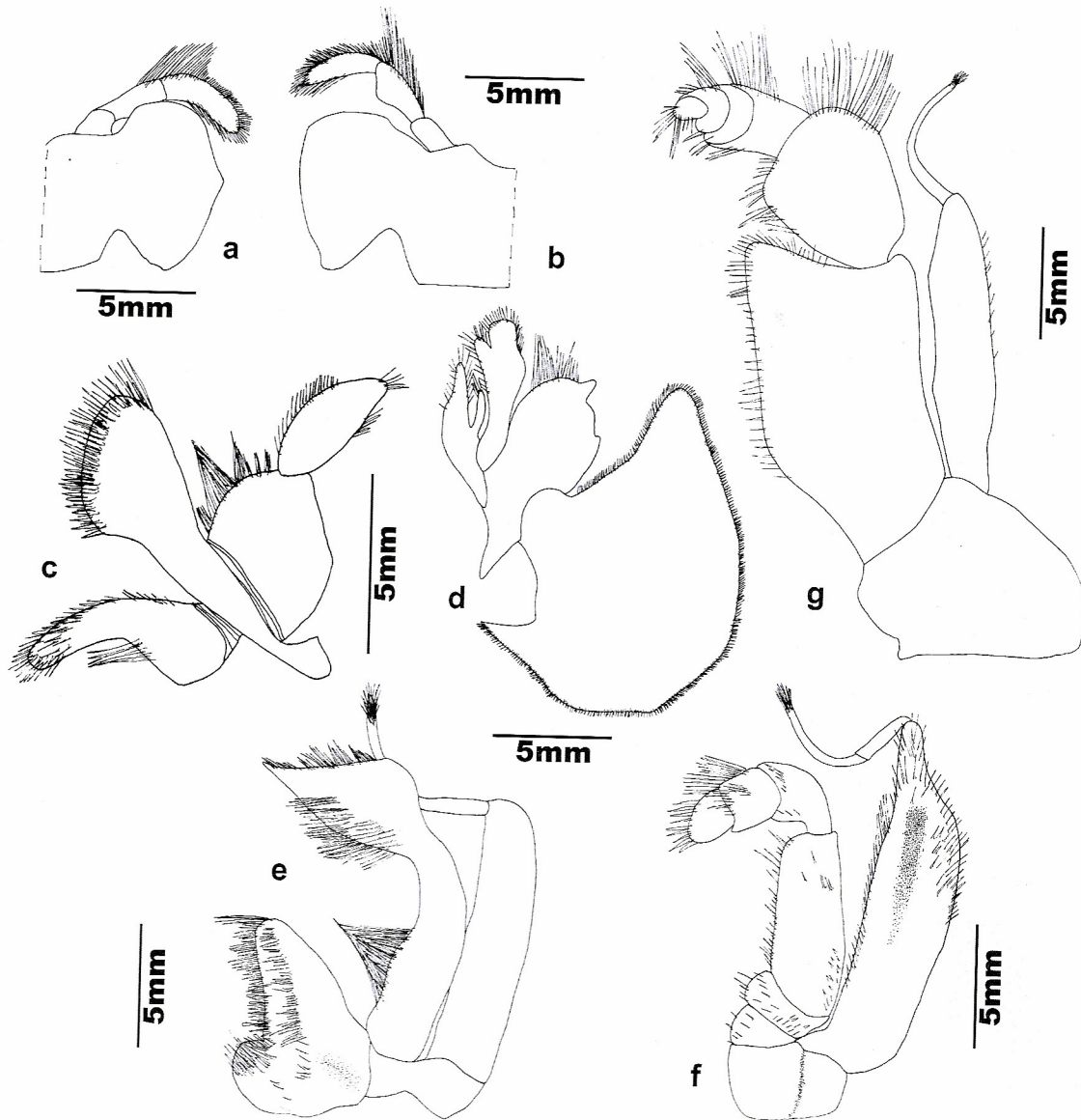


Figure 3: *T. nobile* a) right mandible; b) left mandible; c) right maxilla 1; d) right maxilla 2; e) right maxilliped 1; f) right maxilliped 2; g) right maxilliped 3.

Acknowledgements

We wish to acknowledge Paulo A. S. Costa (UNIRIO, Rio de Janeiro) header of the Revizee Score-Central Program for allowing us to study these collections and by the information about the cruises, Dr. Adriano Brilhante Kury (Museu Nacional/UFRJ) for english review and some important comments on the manuscript, and Dr. Cristiana Serejo (Museu Nacional/UFRJ) for helping with figures. P.S.Y. had financial support for this study from the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq).

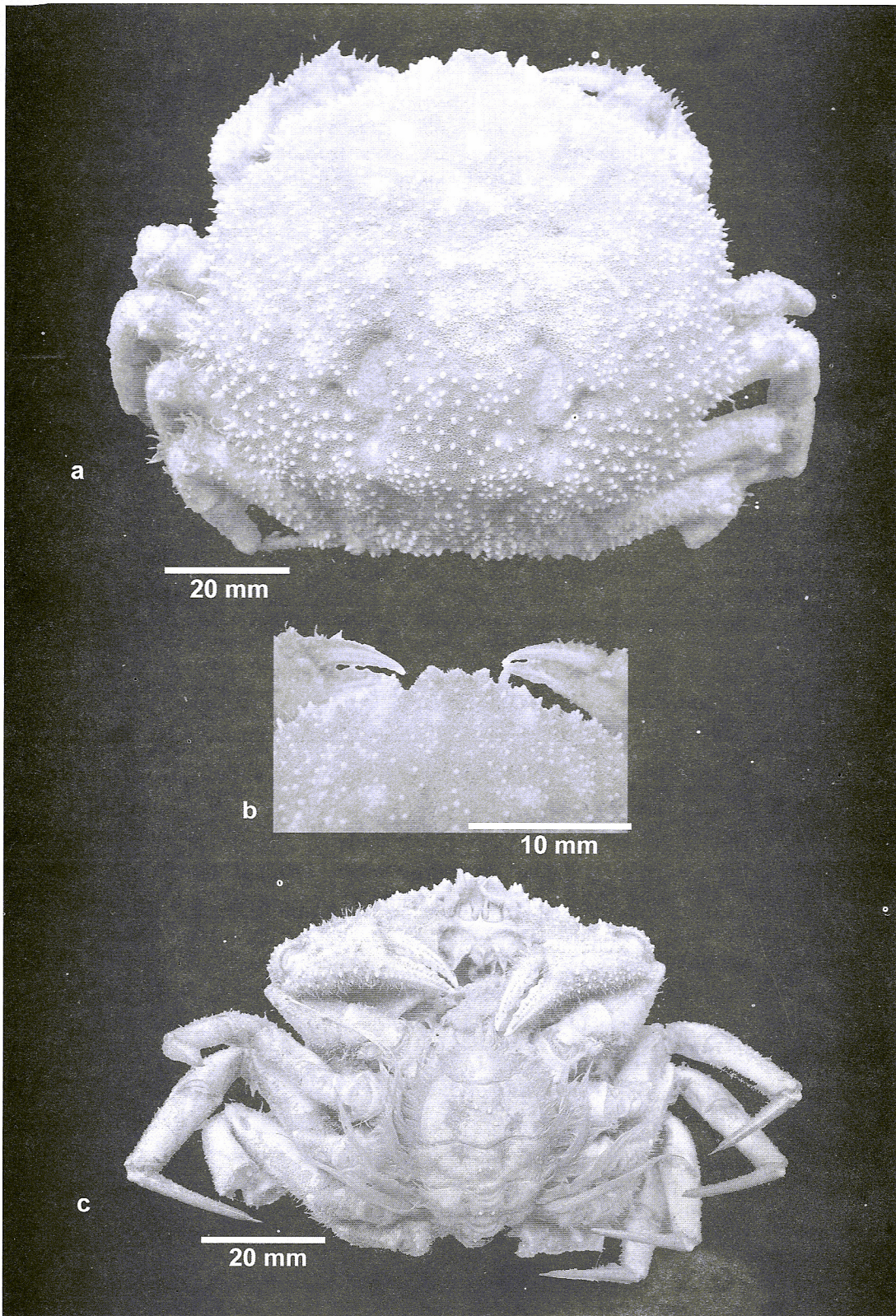


Figure 4: *Trichopeltion nobile* A. Milne-Edwards, 1880. a) carapace, dorsal view; b) rostral horns, dorsal view, c) carapace, ventral view.

References

- Guinot, D. 1993. Données nouvelles sur les crabes primitifs (Crustacea, Decapoda, Brachyura, Podotremata). *Comptes Rendus de l'Académie des Sciences, série III*, 316: 1225-1232.

- Guinot, D. 1995. Crustacea Decapoda Brachyura: Revision de la famille des Homolodromiidae Alcock, 1900, 155-282, fig. 1-42. In: A. Crosnier (ed.), Résultats des Campagnes MUSORSTOM, Volume 13. Mémoires du Muséum National de Histoire Naturelle, 163.
- Komai, T. 2004. Deep-sea shrimps of the genus *Glyphocrangon* A. Milne-Edwards (Crustacea, Decapoda, Caridea, Glyphocrangonidae) from off southeastern coast of Brazil collected during the Revizee Program. Arquivos do Museu Nacional, 53: 31-44.
- Martin, J. W., Christiansen J. C. and Trautwein S. E. 2001. Crabs of the family Homolodromiidae, VI. *Homolodromia monstrosa* new species (Decapoda: Brachyura) from the western North Atlantic with a redescription of the holotype of *Homolodromia paradoxa* A. Milne-Edwards, 1880 and comments on sexual dimorphism. Bulletin of Marine Science, 68: 313-326.
- Melo, G. A. S. 1990. A presença, no litoral sudeste brasileiro de espécies de Brachyura (Crustacea: Decapoda) originárias das regiões biogeográficas Magelânica e Argentina do Atlântico Sul. *Atlântica*, 12 (2):71-83.
- Milne-Edwards, A. 1880. Reports on the results of dredging, under the supervision of Alexander Agassiz, in the Gulf of Mexico and in the Caribbean Sea, 1877, '78, '79, by the United States Coast Survey Steamer "Blake"... VIII. Études préliminaires sur les Crustacés. Bulletin of the Museum of Comparative Zoology at Harvard College, 8 (1): 1-68.
- Rathbun, M. J. 1930. The Cancroid crabs of America of the families Euryalidae, Portunidae, Atelecyclidae, Cancridae and Xanthidae. United States National Museum Bulletin, 152: 1-609.
- Salva, E. W. and Feldmann R. M. 2001. Reevaluation of the family Atelecyclidae (Decapoda: Brachyura). *Kirtlandia*, 52: 9-62.
- Takeda, M. 1983. Crustaceans. In: Takeda, M. and T. Okutani (Eds.). *Crustaceans and mollusks trawled off Suriname and French Guiana*. Marine Fishery Resource Research Center, Tokyo, 354 p.
- Tavares, C. R. 2003. First record of *Bathynectes longispina* Stimpson, 1871 (Crustacea, Brachyura, Portunidae) from southwestern Atlantic. Boletim do Museu Nacional, serie Zoologia, 506: 1-6.
- Tavares, C. R. and Young, P. S. 2002. Nephropidae (Crustacea: Decapoda) collected by the Revizee Score-Central Program from off Bahia to Rio de Janeiro states, Brazil. Arquivos do Museu Nacional, 60: 79-88.
- Young, P. S. and Serejo, C. S. 2002. As espécies de Lithodidae (Anomura, Paguroidea) coletados pelo Programa Revizee Central Pesca. Abstract from the II Congresso Brasileiro sobre Crustáceos, pp: 203. Sociedade Brasileira de Carcinologia, São Pedro, São Paulo, Brazil.

Received: 13th Set 2004

Accepted: 17th Dec 2004