

Papéis Avulsos de Zoologia

Museu de Zoologia da Universidade de São Paulo

Volume 45(18):235-242, 2005

www.scielo.br/paz.htm

ISSN impresso: 0031-1049

ISSN on-line: 1807-0205

A NEW SPECIES OF *TRICHOPELTARION* A. MILNE-EDWARDS, 1880, FROM THE SOUTHWESTERN ATLANTIC (CRUSTACEA: BRACHYURA: ATELECYCLIDAE)

MARCOS TAVARES¹

GUSTAVO AUGUSTO S. DE MELO²

ABSTRACT

A new species of Trichopeltarion A. Milne-Edwards, 1880, is described from off coast of Brazil, namely Trichopeltarion pezzutoi n. sp. The new species is compared to its Atlantic congeners, Trichopeltarion nobile A. Milne-Edwards, 1880, and Trichopeltarion intesi (Crosnier, 1981). The record of T. nobile from Brazil should actually be attributed to T. pezzutoi n. sp. The differences between the genera Trichopeltarion and Peltarion Jacquinot, 1847 are discussed.

KEYWORDS: West Atlantic, Brazil, deep-sea, *Trichopeltarion*, *Trachycarcinus*, *Peltarion*.

INTRODUCTION

To face fisheries depletion in coastal areas, a number of Brazilian fisherman have been turning their attention to unexploited deep-sea fishing grounds (see also Perez *et al.*, 2003). Fishing activities recently conducted in Southeastern Brazilian deep-waters have yielded a wealth of decapod crustaceans as side catch. Thanks to the efforts of Paulo Pezzuto, crustacean material caught during several fishing cruises has been stored and sent to the Zoological Museum in São Paulo for study. Among the material received is a new crab species of the genus *Trichopeltarion* A. Milne-Edwards, 1880. The new species is described herein and compared with its Atlantic congeners. Additionally, comments are provided on the differentiation between the genera *Trichopeltarion* and *Peltarion* Jacquinot, 1847.

Descriptive terminology follows that used by Salva & Feldmann (2001). Abbreviations are as follows: cl, carapace length, frontal spines included; cw, carapace width, lateral spines included; P5, last pereopod; G2, second gonopod; mm, millimeters. The material herein studied has been deposited in or belongs to the collections of the Museu de Zoologia da Universidade de São Paulo (MZUSP), Museu Nacional, Universidade Federal do Rio de Janeiro (MNRJ), Muséum national d'Histoire naturelle, Paris (MNHN), and National Museum of Natural History, Smithsonian Institution, Washington D.C. (USNM).

Trichopeltarion A. Milne-Edwards, 1880

Type species: *Trichopeltarion nobile* A. Milne-Edwards, 1880, by monotypy. Gender neuter.

¹ Museu de Zoologia, Universidade de São Paulo, Caixa Postal 42494-970, 04218-970, São Paulo, SP, Brasil. Email: mdst@usp.br

² Museu de Zoologia, Universidade de São Paulo, Caixa Postal 42494-970, 04218-970, São Paulo, SP, Brasil. Email: gasmelo@usp.br

***Trichopeltarion pezzutoi* n. sp.**

(Figures 1 A-B; 2 A-B; 3)

Trichopeltarion nobile: Tavares & Young, 2004:33, fig. 3a-g, 4a-c (not *Trichopeltarion nobile* A. Milne-Edwards, 1880).

Type material: Brazil: Bahia, REVIZEE, RV "Thalassa", st D-0538, 13°40'741"S, 38°71'601"W, 450-500 m: mature female paratype cl 81.2 mm, cw 85.4 mm (MNRJ 14086). São Paulo, FV "Belen", st 29, 24°56'21"S, 44°43'11"W, E. Lerchiarri coll., 23.vii.2002, 333 m: juvenile female paratype cl 46 mm, cw 48 mm (MZUSP 16715). Cabo de Santa Marta, Santa Catarina, Fishing boat, C. Magenta leg., x.2004, 400-500 m: mature male holotype cl 69 mm, cw 71 mm (MZUSP 16714).

Comparative material:

Trichopeltarion nobile A. Milne-Edwards, 1880: Guadalupe, West coast of Basse Terre, Mission ORSTOM-IRPM-SMCB, FV "Polka", J. Poupin leg., i-v.1993, 500 m: male cl 69 mm, cw 76 mm; female cl 65 mm, cw 75 mm (MZUSP 16716). Guadalupe, West coast of Basse Terre, Mission ORSTOM-IRPM-SMCB, FV "Polka", G. Leblond and J. Poupin coll., i-v.1993, 500 m: 4 adult males, cl ranging from 71-79 mm, cw ranging from 83-90 mm (MNHN 29897). Guadalupe, Basse Terre, Vieux Habitants, FV "Polka", D. Lamy coll., 300-600 m: 2 adult males, cl ranging from 66-80 mm, cw ranging from 74-89 mm; 1 adult female cl 68 mm, cw 79 mm (MNHN 29898). Gulf of Mexico, Florida, Panama City, Southwest of 28°35'01"N, 86°45'44"W, 13.v.1985, 625 m: 5 juveniles females, larger cl 18 mm, cw 20 mm (USNM 1000621), W. Pequegnat det.

Trachycarcinus spinulifer Rathbun, 1898: Gulf of Mexico between Delta of Mississippi and Cedar Keys, Florida, RV "Albatross", st. 2376, 29°03'15"N, 88°16'00"W, 11.ii.1885, 583 m: male holotype cl 28 mm, cw 33 mm (USNM 9639).

Trachycarcinus intesi Crosnier, 1981: Ivory Coast, off coast of cap des Palmes, RV "Capricorne", 4°05'N, 7°40'W, 13.x.1975, A. Intès coll., 600 m: male holotype cl 17 mm, cw 15.5 mm (MNHN-B 9639).

Type locality: Cabo de Santa Marta, Santa Catarina, off coast of Brazil, between 400 and 500 meters depth.

Description: Carapace subcircular, slightly wider than long, arched transversally, strongly arched longitudi-

nally. Front cut into three prominent, forward directed, triangular sharp teeth; central tooth shorter than laterals. Lateral frontal teeth armed with small acute spines (barbs), central tooth with one minute spine on each side. Orbits large, directed laterally. Inner orbital spine separated from tridentate front by deep V-shape notch, 2-3 barbs distally; orbital spine separated from inner orbital by very deep notch, much narrower than preceding one, 3-5 barbs crest its summit, its length extends anteriorly to base of tridentate front; outer orbital spine shorter, triangular in outline, slightly directed outward, separated from orbital spine by a wide notch, barbs on each side. Anterolateral margin rounded, marked with two large triangular spines. First spine longer, separated from outer orbital spine by a subtle depression, barbs becoming smaller toward its tip. Second spine protruding from margin less prominently, armed with barbs, separated from first spine by a weak depression. First and second anterolateral spines and outer orbital spine equidistant from one another. Lateral spine much longer than preceding ones, ending in a acute tip directed laterally, each of its slopes armed with barbs. Posterolateral margin weakly convex, extending obliquely into posterior margin, ornamented with two blunt short spines each one armed with barbs. First and second posterolateral spines more closer to one another than to lateral spine. Posterior margin concave axially, ornamented with several rounded tubercles. Dorsal surface of carapace paved with numerous rounded tubercles, tending to become larger posteriorly, except in depressions bounding elevated regions. Frontal region sparsely tuberculated behind frontal teeth. Gastric region swollen, well delimited laterally by two well excavated wide smooth grooves. Mesogastric region with axial row of small tubercles. Metagastric and urogastric regions separated by short, shallow, oblique, smooth groove; urogastric regions with larger tubercles. Cardiac region heavily tuberculated, two aggregates of smaller tubercles posteriorly. Branchiocardiac grooves smooth, deeply excavated, sinuous. Intestinal region heavily tuberculated, bounded by two large tubercles crested with conspicuous granules. Hepatic and branchial regions heavily tuberculated. Pterygostomial region granulated, most dense anteriorly. Buccal frame nearly rectangular, somewhat wider anteriorly. Insertions of third maxillipeds placed well apart.

Thoracic sternum ovoid, finely granulated, longer than wide; maximum width attained at somite five. Somite three with two lateral expansions. Pair of tubercles from the press-button system situated in the middle of sternite 5.

Right cheliped extremely well developed, massive. Dactylus minutely granulated, longer and more sharply curved than fixed finger, ending in a short acute tooth; cutting edge armed with blunt teeth. Fixed finger minutely granulated, slightly curved, ending in a short acute

tooth; teeth from cutting edge very low, except for two small conical teeth anterior to distal tooth. Propodus minutely granulated, except for a few larger granules on its upper margin. Upper margin of carpus tuberculated proximally, ending in a strong acute spine; carpus outer

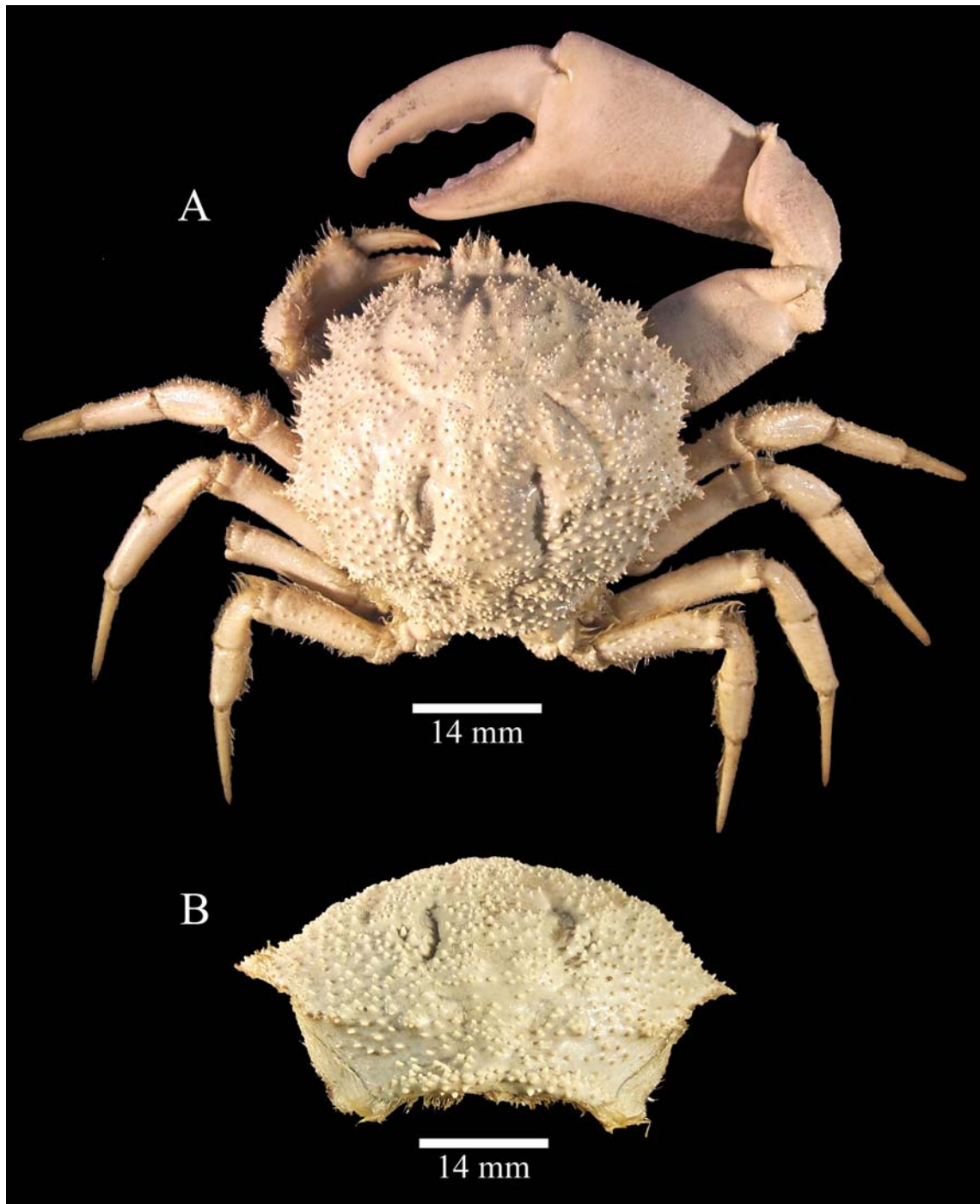


FIGURE 1. *Trichopeltarion pezzutoi* n. sp., mature male holotype, cl 69 mm, cw 71 mm (MZUSP 16714). A, dorsal view of body. B, posterior view of the carapace.

surface finely granulated, ornamented with clusters of small tubercles. Merus finely granulated except for its upper surface tuberculated proximally. Outer surface of propodus, carpus, and merus of smaller cheliped heavily tuberculated, ornamented with long hairs; upper sur-

face of propodus armed with acute spines. Dactyli of all pereopods longer than propodus, surface thickly velvety; remaining segments with sparse hairs. P5 with long hairs on its upper and lower margins, except for carpus with long hairs dorsally only; coxa heavily tuberculated.

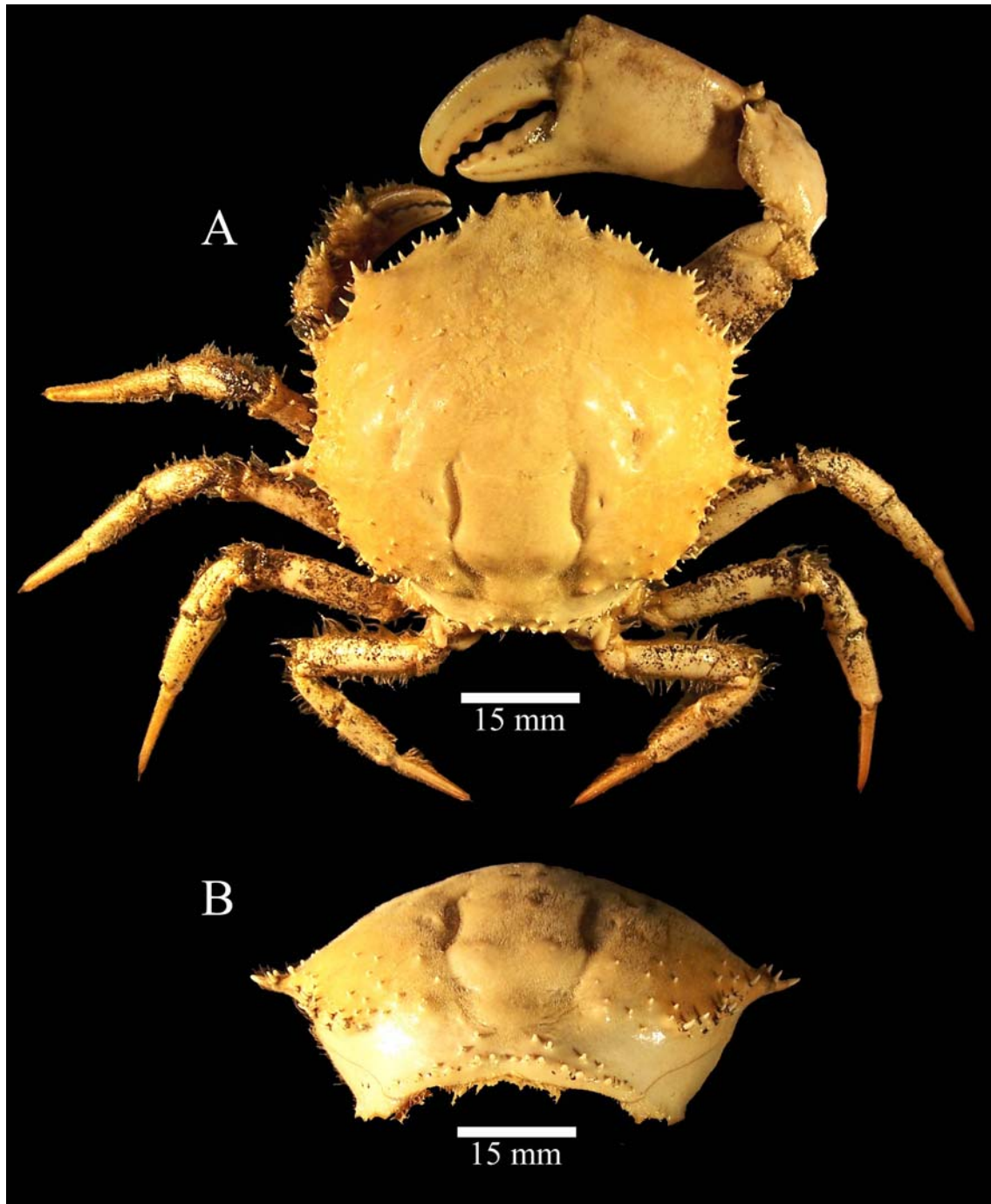


FIGURE 2. A, B, *Trichopeltarion nobile* A. Milne-Edwards, 1880, mature male cl 69 mm, cw 76 mm (MZUSP 16716). A, dorsal view of body. B, posterior view of the carapace.

Abdomen of both male and female of six free segments and telson. Male abdomen sparsely covered with fine hairs; segments 1-3 with a few tubercles, remaining segments smooth. Sixth male abdominal segment longer than preceding ones,

squarish, its anterolateral angles only slightly protruded, weakly swollen; complementary parts of press-button system present and functional. G2 very long, styliform, sinuously curved, crossed near tip.

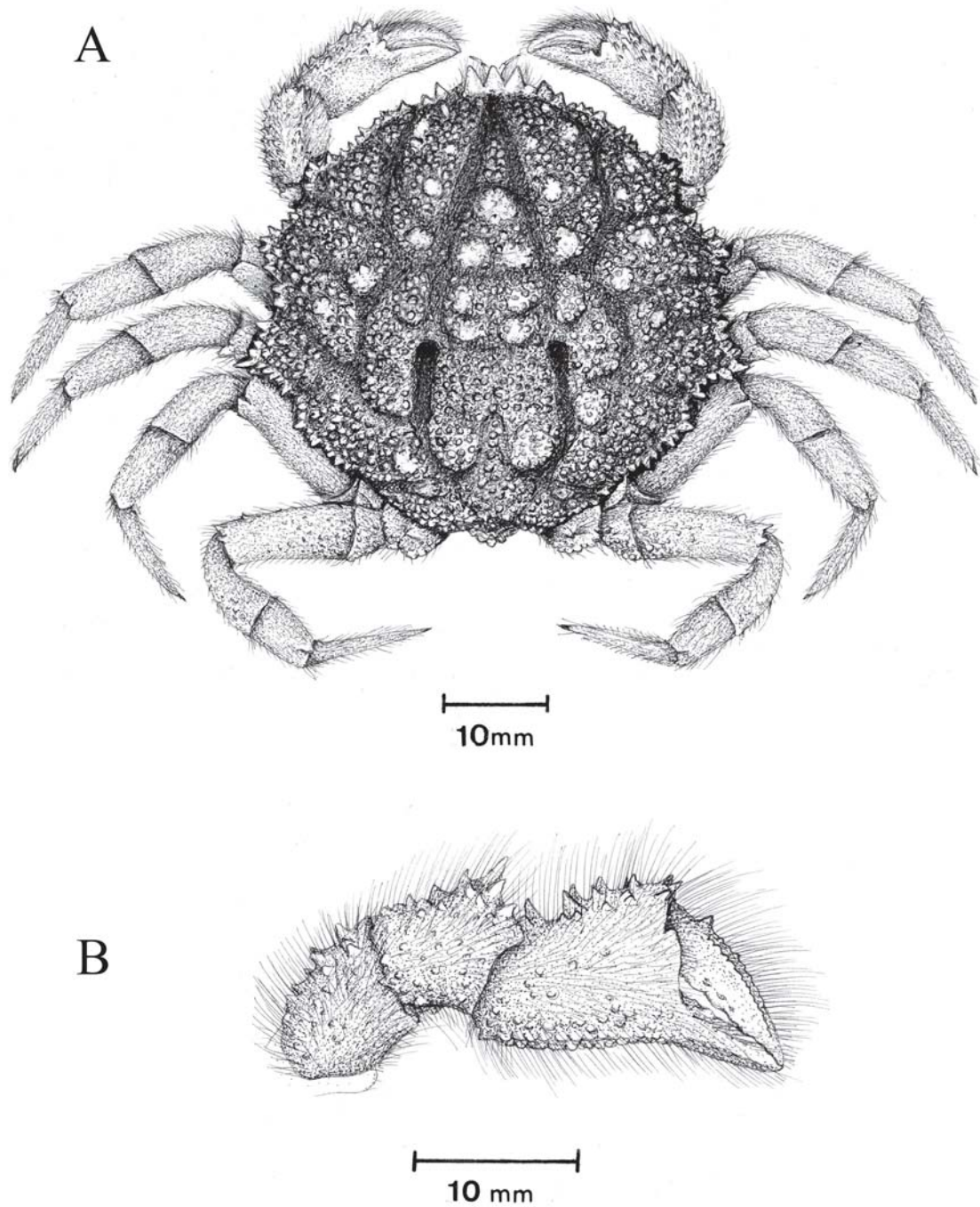


FIGURE 3. *Trichopeltarion pezzutoi* n. sp., juvenile female paratype cl 46 mm, cw 48 mm (MZUSP 16715). A, dorsal view of body. B, external view of right cheliped.

Etymology: This species is named for Paulo Ricardo Pezzuto (Universidade do Vale do Itajaí, Santa Catarina) in recognition of his continuous efforts to secure crustacean specimens caught during commercial deep-water fishing operations.

Distribution: The species is known from the Brazilian coast (Bahia, São Paulo, and Santa Catarina), between 333 and 500 meters depth.

Remarks: The genus *Trichopeltarion* A. Milne-Edwards, 1880, encompasses two valid species in the Atlantic ocean to date, *Trichopeltarion nobile* A. Milne-Edwards, 1880 (from the Caribbean Sea and Gulf of Mexico, between 274 and 752 meters depth, see Pequegnat, 1970; Poupin, 1994), and *Trichopeltarion intesi* (Crosnier, 1981), from West Africa (Ivory Coast, 600 meters depth, see Crosnier, 1981). A third Atlantic species is now added to the genus, *Trichopeltarion pezzutoi* n. sp. Two striking differences between mature males and females of both *T. pezzutoi* n. sp. and *T. nobile* are that: (i) in *T. pezzutoi* n. sp. the carapace is entirely and regularly covered with short sparse fine hairs (while in *T. nobile* the carapace is covered by a thick coat of velvet, see also A. Milne-Edwards, 1880:20-21; Rathbun, 1930; Salva & Feldmann, 2001:34); (ii) the carapace is regularly covered with rounded tubercles (whereas in *T. nobile* the carapace is ornamented with small tubercles or granules near the margins while its central parts are smooth). Additional differences between *T. pezzutoi* n. sp. and *T. nobile* are as follows: (i) carapace lateral spine neatly shorter in *T. pezzutoi* n. sp.; (ii) posterior region of the carapace heavily tuberculated (smooth in *T. nobile*, see also Salva & Feldmann, 2001:30, tab. 3); (iii) gastric region clearly delimited by well marked furrows (hardly recognizable in *T. nobile*); (iv) G2 crossed near tip (G2 crossed well before tip in *T. nobile*).

The mature female recorded from off coast of Bahia and identified with *T. nobile* by Tavares & Young (2004) should actually be attributed to *T. pezzutoi* n. sp.

T. pezzutoi n. sp. and *T. intesi* are very different from each other. In *T. intesi* the carapace is heavily ornamented and the front is cut into three cylindrical teeth of equal length, whereas in *T. pezzutoi* n. sp. the front is expressed as three sharp triangular teeth, the central one shorter than the laterals (see also Crosnier, 1981: fig. 1). As suggested by the pronounced heterochely in the small male holotype, *T. intesi* reach maturity at a much smaller size (at least cl 17 mm, cw 15.5 mm) and seems to be a much smaller species. In *T. intesi* the antennal article 2+3 is separated from the inner suborbital tooth by a wide gap and is freely mov-

able (see also Crosnier, 1981: fig. 2a), whereas in *T. pezzutoi* n. sp. and *T. nobile*, the antennal article 2+3 and the inner suborbital tooth are placed close to one another and the antennal article 2+3 is hardly movable. Future researches may prove that *T. intesi* actually belong to an undescribed genus.

Rathbun (1898) described an additional species from the Gulf of Mexico, *Trachycarcinus spinulifer* Rathbun, 1898. The description of *T. spinulifer* was based on one male and a broken carapace, both caught off the delta of the Mississippi River between 592 and 635 meters depth. As interpreted by Rathbun (1898:278-279; 1930:166-167) one remarkable trait of *T. spinulifer* is the nearly equal chelipeds, while in *T. nobile* "Les pattes antérieures [chelipeds] sont très inégales, celle de droite énorme et presque complètement glabre..." (A. Milne Edwards, 1880:20). Based on many additional specimens of different sizes from the Gulf of Mexico, Pequegnat (1970:184) suggested that the possession of a major cheliped is size related. He concluded that the male holotype of *Trachycarcinus spinulifer* (carapace 26 mm long, frontal teeth excluded) is an immature of *Trichopeltarion nobile* (holotype 66 mm long caught at Santa Lucia at 276 meters depth) and placed *T. spinulifer* in the synonymy of *T. nobile* accordingly. As suggested from Pequegnat's data and also by Salva & Feldmann (2001:32), tubercles density and carapace ornamentation are also affected by carapace size, as smaller specimens tend to be more heavily ornamented. Based on the examination of the holotype of *T. spinulifer* we subscribe to the view that *T. spinulifer* Rathbun, 1898, should merge into the synonymy of *T. nobile* A. Milne-Edwards, 1880.

Remarks on the genera *Trichopeltarion* and *Peltarion*

Ambiguities in assignment of species to *Trachycarcinus* and *Trichopeltarion* mainly, but also to *Peltarion* Jacquinet, 1847, has long been problematic (Rathbun, 1930:165; Richardson & Dell, 1964; Dell, 1969; Takeda, 1973; Crosnier, 1981; Guinot, 1986; 1989; Salva & Feldmann, 2001). Traditionally too much emphasis has been placed on carapace outline and shape to differentiate genera. It is therefore not unexpected that generic characters overlap as new species are discovered. Based on several recent and fossil species Salva & Feldmann (2001) concluded that *Trachycarcinus* Faxon, 1893, should merge into the synonymy of *Trichopeltarion*. Although they did not elaborate on the differences between *Trichopeltarion* and *Peltarion* they pointed out that *Peltarion*

dextrum (Rathbun, 1898) “appears to be similar to *Trichopeltarion*, especially with regard to the orbital and anterolateral spines”. Rathbun (1898:277) had also noticed that *Peltarium dextrum* resembles *Trichopeltarium* in certain points. As revealed by *Peltarion spinulosum* (White, 1843) (= *Peltarion magellanicus* Jacquinot, 1847, type species of *Peltarion*), *Peltarion* differs from *Trichopeltarion* in having: (i) the male abdominal segments 3 to 5 fused to each other (in *Trichopeltarion* all abdominal segments are usually free though Salva & Feldmann (2001:43) reported that segments five and six are fused in *T. greggi* Dell, 1969, from the Miocene of New Zealand; in *Peltarion dextrum* abdominal segments 1-6 are free); (ii) the two complementary parts of the abdominal holding system well defined but are not functional as the sockets do not reach the thoracic sternal buttons (see also Guinot, 1979; Guinot & Bouchard, 1998) (the two parts of the press-button system are present and functional in *Trichopeltarion* although a gap between the complementary parts may occur in large individuals on the major cheliped side, Guinot & Bouchard, 1998:646; in *Peltarion dextrum* the two parts of the press-button system are present and functional); (iii) the pair of tubercles of the press-button system are very close to the sternal suture 5/6 (in *Trichopeltarion* the tubercles are in the middle of sternite 5); (iv) a narrower telson, so the tips of G2 remain exposed laterally when the abdomen is fully folded beneath the cephalothorax (the G2 remain completely hidden in both *Trichopeltarion* and *Peltarion dextrum*); (v) the anterolateral angles of abdominal somite 6 strongly protruded forward so the telson show as a narrow triangle intercalated in between (in both *Trichopeltarion* and *Peltarion dextrum* the telson is not intercalated within abdominal somite 6 as the postero-lateral angles of the sixth somite are only weakly protruded). A thorough study of *P. dextrum* is badly needed in order to appropriately evaluate its systematic position.

Material of *Peltarion dextrum* examined: Mexico, off Cozumel, RV “Albatross”, st. 2359, 20°19'10"N, 87°03'30"W, 29.i.1885, 415 m: male holotype cl 42 mm, cw 36 mm (USNM 9558).

RESUMO

Uma nova espécie do gênero Trichopeltarion A. Milne-Edwards, 1880 coligida no talude continental brasileiro é descrita e ilustrada, nomeadamente Trichopeltarion pezzutoi n. sp. A nova espécie é comparada às suas congêneres do oceano Atlântico, Trichopeltarion nobile A. Milne-Edwards, 1880 e Trichopeltarion intesi (Crosnier, 1981). O registro de

T. nobile para o Brasil deve ser atribuído à T. pezzutoi n. sp. São discutidas as diferenças entre os gêneros Trichopeltarion e Peltarion Jacquinot, 1847.

PALAVRAS-CHAVE: Atlântico ocidental, Brasil, oceano profundo, *Trichopeltarion*, *Trachycarcinus*, *Peltarion*.

ACKNOWLEDGEMENTS

We are sincerely grateful to Rodney M. Feldmann (Kent State University, Ohio) and Danièle Guinot (Muséum national d'Histoire naturelle, Paris) for critically reviewing the manuscript (Rodney also kindly streamlined the English text); to Paulo Pezzuto (Universidade do Vale do Itajaí, Santa Catarina) and Carlos Magenta (MZUSP) for entrusting the present material for study; to Cristiana Serejo (MNRJ), Rafael Lemaitre (NMNH), and Regis Cleva (MNHN) for making available the material from their institutions; and to Jaime Roberto Somera and William Santana (MZUSP) for preparing drawings and photographs, respectively. We also thank the CNPq (National Council for the Development of Science and Technology, Brasília) for supporting studies on the systematics of decapod crustaceans in the form of ongoing grants 303531/2004-5 and 304273/2004-0, respectively.

REFERENCES

- Crosnier, A. 1981. Découverte du genre *Trachycarcinus* dans l'Atlantique orientale. Description de *T. intesi* sp. nov. (Decapoda Brachyura). *Crustaceana*, 40(3):303-306.
- Dell, R.K. 1969. A new Pliocene fossil crab of the genus (*Trichopeltarion*) from New Zealand. *Records of the Canterbury Museum*, 8(4):366-371.
- Guinot, D. 1979. Données nouvelles sur la morphologie, la phylogénèse et la taxonomie des Crustacés Décapodes Brachyours. *Mémoires du Muséum national d'Histoire naturelle*, Paris Série A, Zoologie, 112:1-354.
- Guinot, D. 1986. Une nouvelle espèce du genre *Trachycarcinus*, *T. crosnieri* sp. nov., de Madagascar (Crustacea Decapoda Brachyura). *Bulletin du Muséum national d'Histoire naturelle*, Paris, 4^e Série, Section A, Zoologie biologie et écologie animals, 7(4):805-817, 1985.
- Guinot, D. 1989. Les genres *Trachycarcinus* Faxon et *Trichopeltarion* A. Milne Edwards (Crustacea, Brachyura: Atelecyclidae). In: J. Forest (Ed.), Résultats des Campagnes MUSORSTOM, Volume 5. *Mémoires du Muséum national d'Histoire naturelle*, Série A, Zoologie, 144:347-385.
- Guinot, D. & Bouchard, J.M. 1998. Evolution of the abdominal holding systems of brachyuran crabs (Crustacea, Decapoda, Brachyura). *Zoosystema*, 20(4):613-694.
- 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, 1878, 1879, by the U.S. Coast Survey Steamer "Blake", Lieut-Commander C.D. Sigsbee, U.S.N., and Commander J.R. Bartlett, U.S.N., Commanding. VIII. Études préliminaires sur les Crustacés, 1re Partie. *Bulletin of the Museum of Comparative Zoology*, 8(1):1-68.
- Pequegnat, W.E. 1970. Deep-water Brachyuran crabs. In: Pequegnat, W.E. & Chace, F.A., Jr. (Eds.), *Contributions on the biology of the Gulf of Mexico*. Texas A & M University Oceanographic Studies/Gulf Publishing, Houston, v. 1, p. 171-204.
- Perez, J.A.A.; Wahrlich, R.; Pezzuto, P.R.; Schwingel, P.R.; Lopes, F.R.A. & Rodrigues-Ribeiro, M. 2003. Deep-sea fishery off Southern Brazil: recent trends of the Brazilian fishing industry. *Journal of Northwest Atlantic Fishery Sciences*, 31:1-18.
- Poupin, J. 1994. *Faune marine profonde des Antilles Françaises. Récoltes du navire Polka faites en 1993*. Collection Études et Thèses. ORSTOM, Paris.
- Rathbun, M.J. 1898. The Brachyura of the Biological Expedition to the Florida Keys and the Bahamas in 1893. *Bulletin from the Laboratories of Natural History of the State University of Iowa*, 4(3):250-294.
- Rathbun, M.J. 1930. The cancroïd crabs of America of the families Euryalidae, Portunidae, Atelecyclidae, Cancridae, and Xanthidae. *United States National Museum Bulletin*, 152:1-609.
- Richardson, L.R. & Dell, R.K. 1964. A new crab of the genus *Trichopeltarion* from New Zealand. *Transactions of the Royal Society of New Zealand, Zoology*, 4(7):145-151.
- Salva, E.W. & Feldmann, R.M. 2001. Reevaluation of the family Atelecyclidae (Decapoda: Brachyura). *Kirtlandia*, 52:9-62.
- Takeda, M. 1973. Report on the crabs from the sea around the Tushima Islands collect by the research vessel "Genkai" for the Trustees of the National Science Museum, Tokyo. *Bulletin of the Liberal Arts and Science Course*, 1:17-68.
- Tavares, C.R. & Young, P.S. 2004. First record of *Homolodromia monstrosa* Martin, Christiansen & Trautwein, 2001 (Homolodromiidae) and *Trichopeltarion nobile* A. Milne Edwards, 1880 (Atelecyclidae) from the Southwestern Atlantic. *Nauplius*, 12(1):31-38.

Recebido em: 24.08.2005

Aceito em: 17.10.2005