

## Deep-sea Pasiphaeidae (Crustacea: Decapoda: Caridea) from off the Brazilian central coast between 11° and 22°S, collected by the Revizee Program

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### Abstract

The family Pasiphaeidae is composed of seven genera, and only one of these genera, *Leptochela*, has been recorded from off Brazilian waters. From collections made during the Revizee Program — Central Score (between 11°–22°S and 200–2200m), four species are recorded for the first time from off the Brazilian coast: *Pasiphaea merriami*, *Pasiphaea princeps*, *Parapasiphae cristata* and *Parapasiphae sulcatifrons*.

**Key words:** Pasiphaeidae, *Pasiphaea*, *Parapasiphae*, Brazil, Revizee Program

### Introduction

The family Pasiphaeidae is composed of seven genera, with a worldwide distribution. Of these genera, only *Leptochela* Stimpson, 1860, typical from shallow waters, has been recorded from Brazilian coast. The known species of *Leptochela* from Brazilian waters are: *Leptochela (Leptochela) bermudensis* Gurney, 1939, from Maranhão and Piau' states; *Leptochela (Proboloura) carinata* Ortmann, 1893, from Pará to Alagoas states; and *Leptochela (Leptochela) serratorbita* Bate, 1888 from Amapá to Pernambuco and São Paulo states (Ramos-Porto & Coelho 1998). During the Revizee Program — Central Score, a total of 130 trawls were made on the central Brazilian continental slope, from 200 to 2200 meters, between 11°S and 22°S (from Bahia to Rio de Janeiro states). In the material examined herein four species are recorded for the first time from Brazilian waters: *Pasiphaea merriami* Schmitt, 1931, *Pasiphaea princeps* Smith, 1884, *Parapasiphae cristata* Smith, 1884 and *Parapasiphae sulcatifrons* Smith, 1884. Abbreviation used: cl — carapace length.

## Systematics

Genus *Pasiphaea* Savigny, 1816*Pasiphaea merriami* Schmitt, 1931

(Figs. 1–2)

*Pasiphaea merriami* Schmitt, 1931: 391–392; Takeda, 1984:59; Tchesunov, 1984b: 997–1003.*Material examined*

St. E0503, 14°37.834' S, 38°52.029' W to 14°34.565' S, 38°51.672' W, 740 m, 10/VI/2000, 3 males, cl: 16.2–18.4 mm, MNRJ 14627. St. E0509, 15°47.725' S, 38°21.973' W to 15°46.378' S, 38°24.839' W, 2076 m, 12/VI/2000, 1 male, cl: 28.7 mm, MNRJ 14625. St. E0517, 13°22.173' S, 38°36.566' W to 13°24.968' S, 38°38.277' W, 750 m, 19/VI/2000, 1 female, cl: 24.0 mm, MNRJ 14628. St. E0543, 21°23.944' S, 40°11.292' W to 21°28.481' S, 40°09.750' W, 666 m, 05/VII/2000, 2 females, cl: 29.5–31.0 mm, 4 males, cl: 22.6–44.2 mm, MNRJ 14626.

*Description*

Body strongly laterally compressed. Rostrum acute, curved upward (Fig. 1a). Carapace with branchiostegal spine (Fig. 1a). Ocular peduncle and cornea of approximately the same size (Fig. 1a).

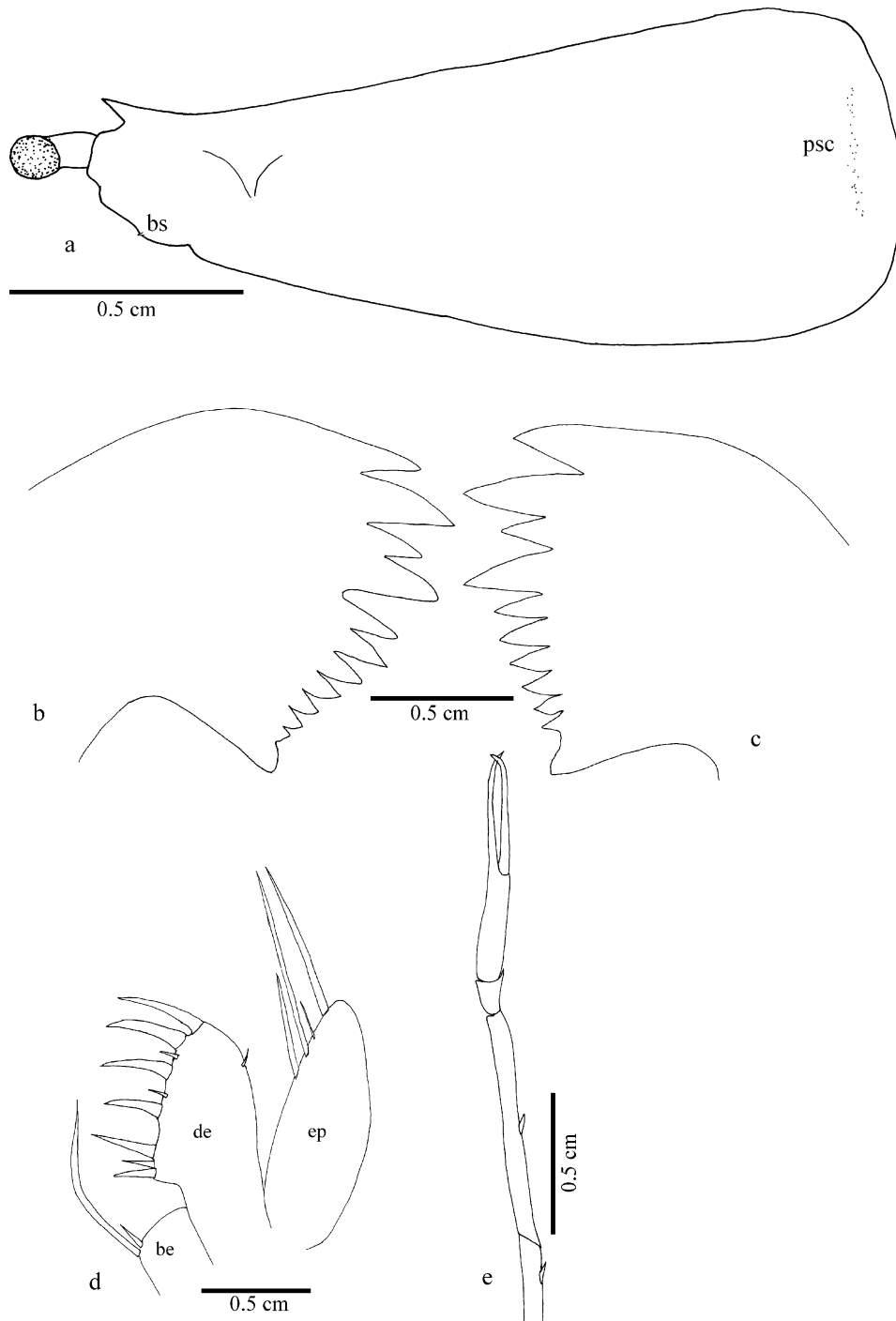
Mandible with 11-teeth or 12-teeth incisor process; without molar process and palp (Fig. 1b, c). Maxilla 1, basal endite with a long cuspidate seta and a short one; distal endite with nine distal cuspidate setae and one small lateral cuspidate seta; endopodal palp with three long cuspidate setae and a short one on margin (Fig. 1d). Pereiopod 1, carpus with an antero-lateral spine; merus with one lateral cuspidate setae; basis with a big inner spine. Pereiopod 2, carpus with an antero-lateral spine, similar to that one of P1, but bigger; merus with one big cuspidate setae; basis similar to basis of P1 (Fig. 1e). Pereiopod 3 long and filiform; pereiopods 4 and 5 reduced, P4 smaller than P5. Male endopod with marginal articulate plumose setae, and with hooked setae on distal lobe (Fig. 2a,b). Appendix interna with terminal hooked setae (Fig. 2c,d). Appendix masculina of approximately half of size of appendix interna, with marginal cuspidate setae (Fig. 2c). Telson with eight terminal cuspidate setae (Fig. 2e).

*Distribution*

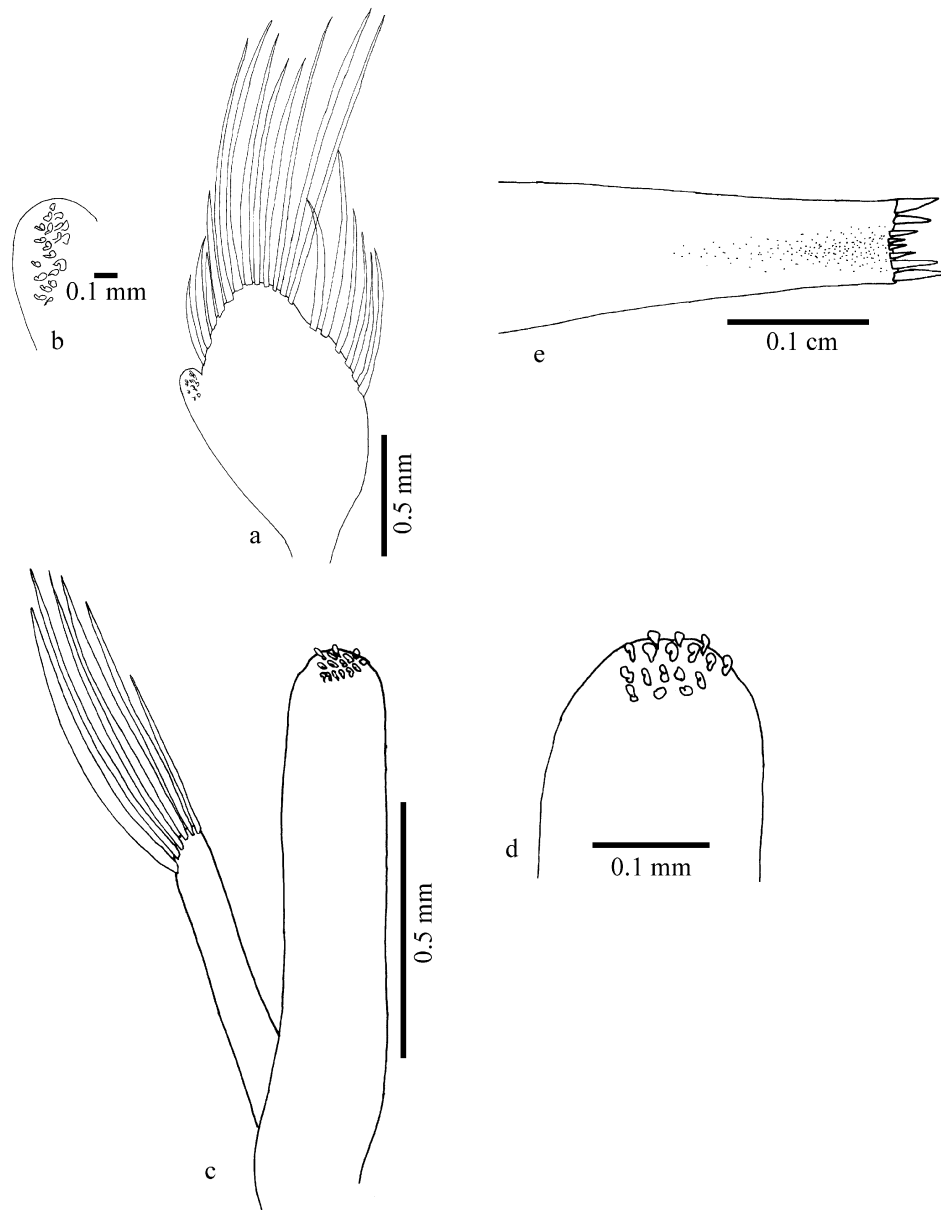
Western Atlantic, from off southeast Florida through the Gulf of Mexico and the Caribbean Sea to Suriname. Depth: 410–3200 m. (Takeda 1984)

*New records*

Brazil — from Bahia to Espírito Santo states.



**FIGURE 1.** *Pasiphaea merriami* Schmitt, 1931, one male, MNRJ 14627. a) Carapace, lateral view. (bs — branchiostegal spine; psc — postcervical sulcus); b) Right mandible; c) Left mandible; d) Maxilla 1; e) Pereiopod 2 (be — basal endite; de — distal endite; ep — endopodal palp).



**FIGURE 2.** *Pasiphaea merriami* Schmitt, 1931, one male, MNRJ 14627. a) Male endopod; b) Detail of male endopod; c) Appendix masculina and appendix interna; d) Detail of appendix interna; e) telson.

***Pasiphaea princeps* Smith, 1884**

(Figs. 3–4)

*Pasiphaea princeps* Iwasaki, 1990: 196–199, figs 5–6.

*Material examined*

St. E0496, 13°17.580' S, 38°17.599' W to 13°12.030' S, 38°14.873' W, 1717 m, 07/VI/2000, 2 females, cl: 60.6–74.6 mm, MNRJ 19525. St. E0538, 20°27.667' S, 39°38.101' W to 20°32.771' S, 39°37.650' W, 1680 m, 02/VII/2000, 2 females, cl: 20.2–57.0 mm, 1 male, cl: 55.2 mm, MNRJ 14607. St. E0525, 20°08.145' S, 38°38.081' W to 20°07.308' S, 38°42.906' W, 1639 m, 28/VI/2000, 1 male, cl: 44.0 mm, MNRJ 14614. St. E0548, 21°28.611' S, 39°40.303' W to 21°25.523' S, 39°40.443' W, 1799 m, 07/VII/2000, 1 female, cl: 47.9 mm, 3 males, cl: 52.2–76.2 mm, MNRJ 19522. St. E0550, 21°26.324' S, 39°49.113' W to 21°28.583' S, 39°47.176' W, 1598 m, 07/VII/2000, 1 female, cl: 62.3 mm, MNRJ 19521. St. E0551, 21°07.780' S, 39°49.106' W to 21°04.783' S, 39°48.698' W, 1642 m, 08/VII/2000, 1 male, cl: 38.9 mm, MNRJ 19518. St. E0552, 21°07.493' S, 39°46.423' W to 21°09.541' S, 39°46.079' W, 1694 m, 08/VII/2000, 1 female, cl: 50.6 mm, MNRJ 19520.

*Description*

Body strongly laterally compressed. Rostrum acute, tip curved upward (Fig. 3a). Carapace with branchiostegal spine; branchiocardiac carina well defined; postcervical sulcus present (Fig. 3a). Ocular peduncle and cornea of approximately the same size (Fig. 3a).

Mandible with 11-teeth incisor process; without molar process and palp (Fig. 3b,c). Maxilla 1, basal endite with four short cuspidate setae; distal endite with 13 distal cuspidate setae; endopodal palp with four simple setae on margin (Fig. 3d). Pereiopod 1, carpus with a distolateral spine and some distolateral setae; merus with one lateral cuspidate setae on final quarter, and some distolateral setae. Pereiopod 2, carpus with a distolateral spine, similar to that one of P1, but bigger, and with some distolateral setae; merus with five–seven cuspidate setae and some distolateral setae (Fig. 3e). Pereiopod 3 long and filiform; pereiopods 4 and 5 reduced, P4 smaller than P5.

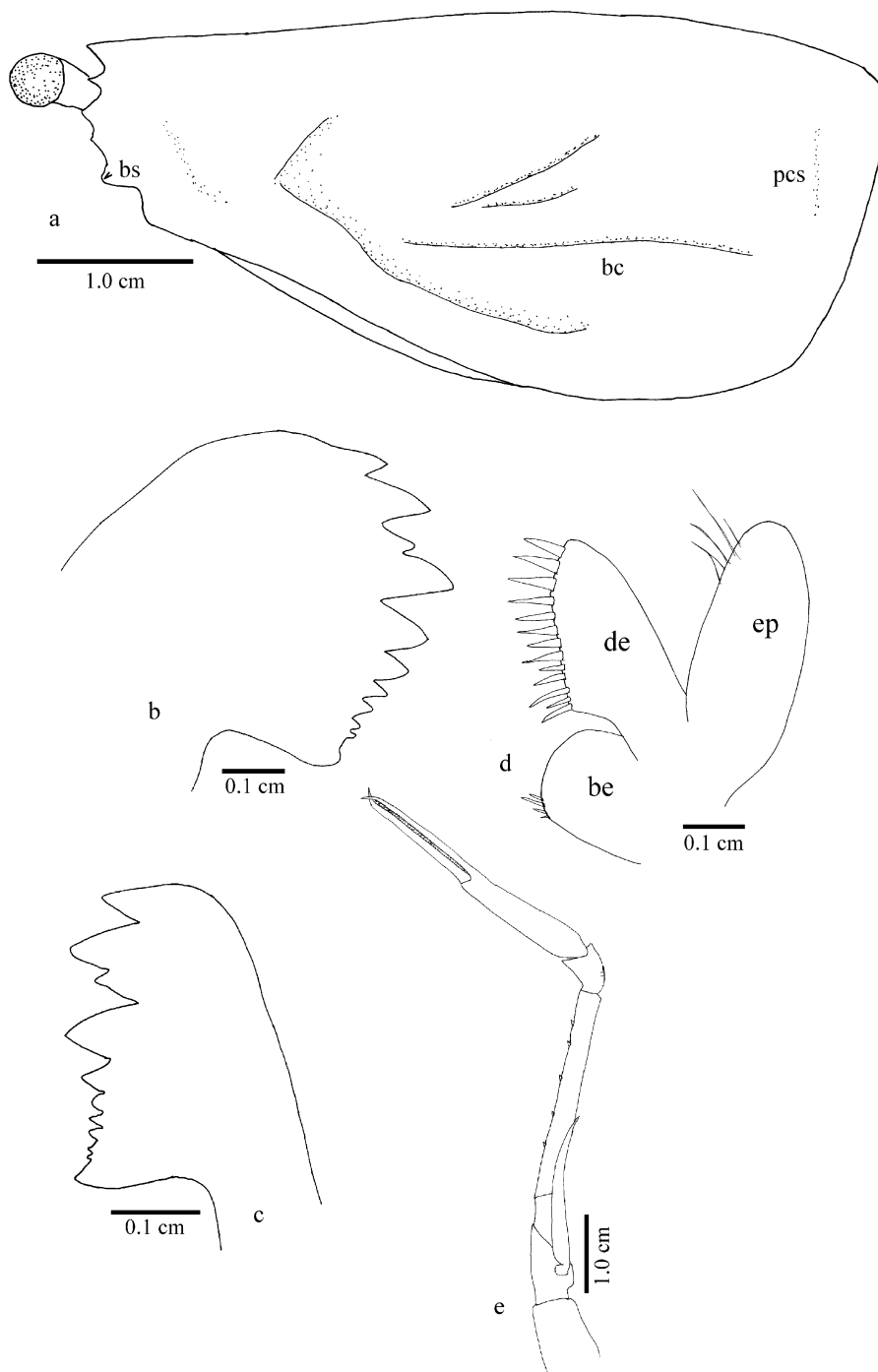
Male endopod with marginal articulate plumose setae, and with hooked setae on distal lobe (Fig. 4a,b). Appendix interna with terminal hooked setae (Fig. 4c,d). Appendix masculina approximately half the size of appendix interna, with marginal cuspidate setae (Fig. 4c). Telson bifurcate, with 20 terminal cuspidate setae, ten on each side, outer ones are bigger than inner ones (Fig. 4e).

*Distribution*

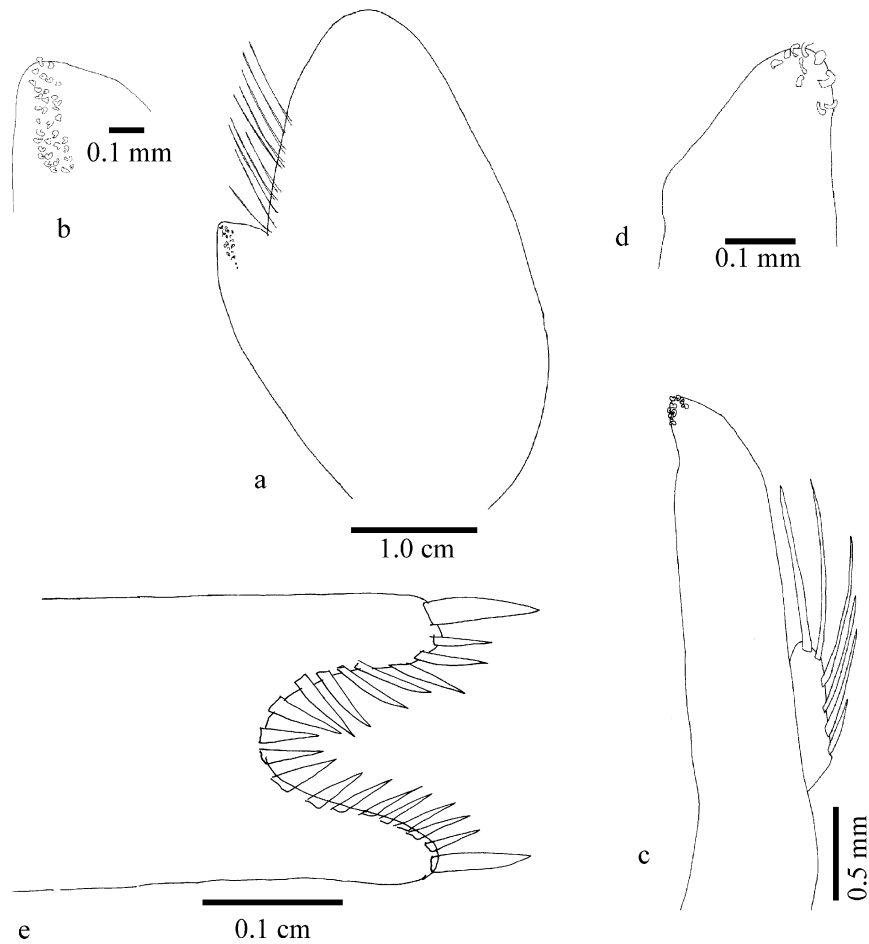
Northeastern Atlantic: Cape Verde. Depth: 1450–2500 m (Iwasaki 1990).

*New records*

Brazil — from Bahia to Rio de Janeiro states.



**FIGURE 3.** *Pasiphaea princeps* Smith, 1884, one male, MNRJ 19520. a) Carapace, lateral view. (bc — branchiocardiac carina; bs — branchiostegal spine; pcs — postcervical sulcus); b) Right mandible; c) Left mandible; d) Maxilla 1; e) Pereiopod 2 (be — basal endite; de — distal endite; ep — endopodal palp).



**FIGURE 4.** *Pasiphaea princeps* Smith, 1884, one male, MNRJ 19522. a) Male endopod; b) Detail of male endopod; c) Appendix masculina and appendix interna; d) Detail of appendix interna; e) telson.

**Genus *Parapasiphae* Smith, 1884**

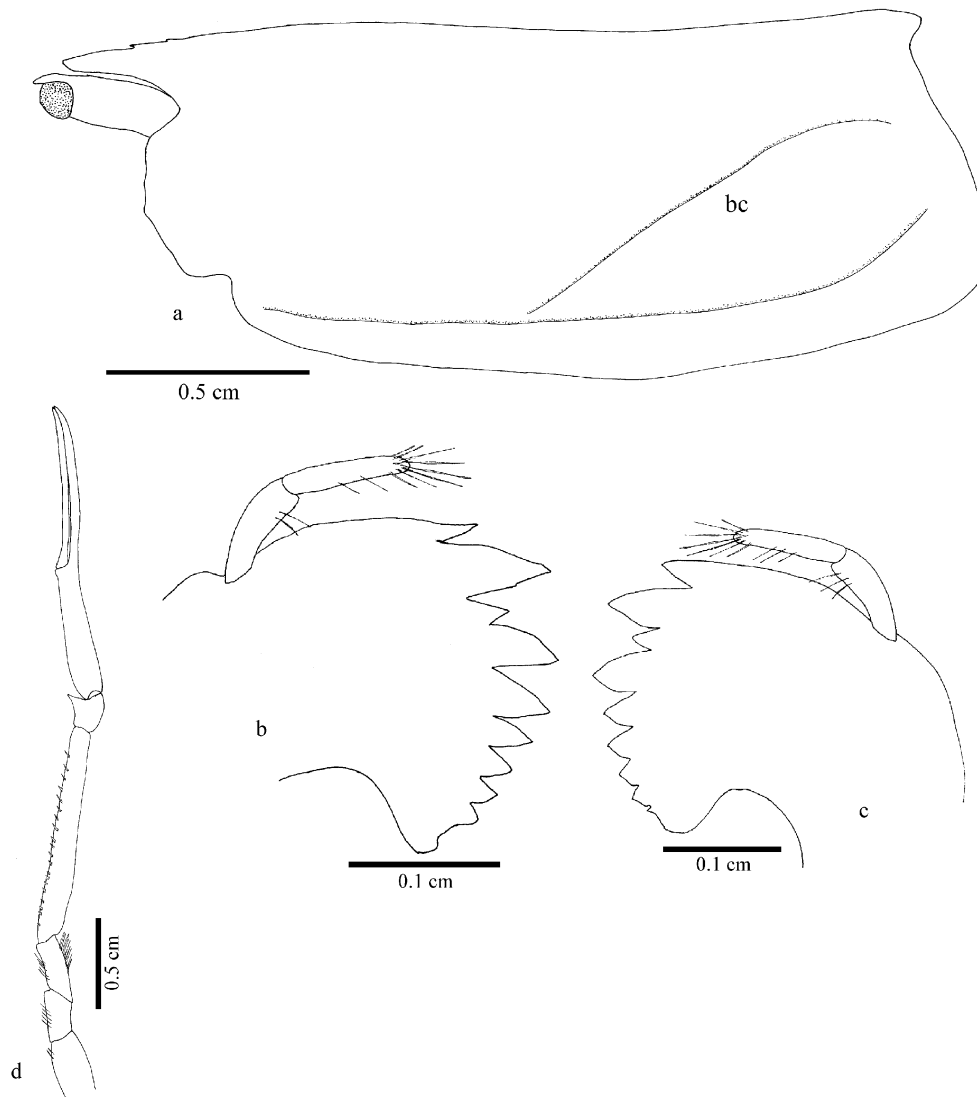
***Parapasiphae cristata* Smith, 1884**

(Figs. 5–6)

*Parapasiphae cristata* Smith, 1884: 388, pl.V, fig.3; Tchesunov, 1984a: 1170–1174, figs 3–4; Wasmer, 2005: 167–173, fig.5.

*Material examined*

E0519, 13°19.944' S, 38°19.654' W to 13°22.615' S, 38°21.960' W, 1730 m, 20/VI/2000, 1 male, cl: 20.9 mm, MNRJ 19528.



**FIGURE 5.** *Parapasiphae cristata* Smith, 1884, one male, MNRJ 19528. a) Carapace, lateral view. (bc – branchiocardiac carina); b) Right mandible; c) Left mandible; d) Pereiopod 2.

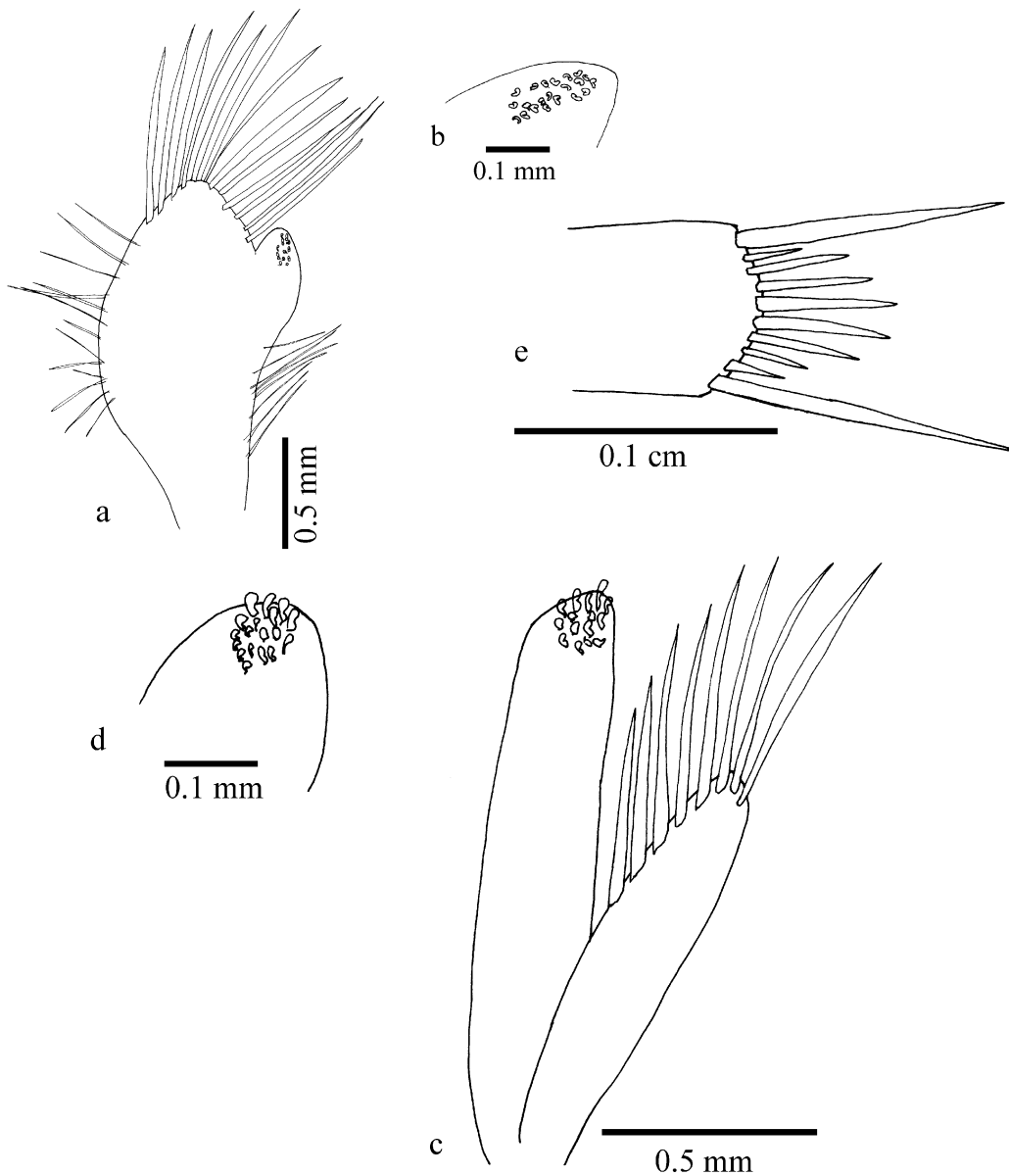
#### *Description*

Rostrum acute at tip, directed forward (Fig. 5a). Carapace with a dorsal carina with two small spines (Fig. 5a). Cornea approximately 1/3 of ocular peduncle. Ocular peduncle broad, with a big inner-lateral spine that surpasses cornea and rostrum (Fig. 5a).

Mandible with 10-teeth incisor process; without molar process; with palp (Fig. 5b,c). Pereiopod 1, merus with 16-18 cuspidate setae. Pereiopod 2, carpus with a big inner-lateral spine; merus with 23-26 cuspidate setae; ischium with 1-2 cuspidate setae; basis with 13-16 cuspidate setae (Fig. 5d). Pereiopod 3 long and filiform, reaching half of P2 palm.



Pereiopod 4 and pereiopods 5 reduced, P4 smaller than P5. Abdominal somite 4 with a dorsal spine. Male endopod with marginal articulate plumose setae, with hooked setae on distal lobe (Fig. 6 a,b). Appendix interna with terminal hooked setae (Fig. 6 c,d). Appendix masculina approximately 2/3 length of appendix interna, with marginal cuspidate setae (Fig. 6 c). Telson long, sulcate on almost its entire length, with ten terminal cuspidate setae of different sizes, outer ones bigger than inner ones (Fig. 6 e).



**FIGURE 6.** *Parapasiphae cristata* Smith, 1884, one male, MNRJ 19528. a) Male endopod; b) Detail of male endopod; c) Appendix masculina and appendix interna; d) Detail of appendix interna; e) telson.

*Distribution*

Eastern Pacific, from Oregon; North Atlantic. Depth: Taken in midwater tows between 1250 and 1500 m and in tows made in the water column between the surface and 2870 m (Hendrickx & Estrada-Navarrete 1989).

*New records*

Brazil — from Bahia state.

***Parapasiphae sulcatifrons* Smith, 1884**

(Figs. 7–8)

*Parapasiphae sulcatifrons* Iwasaki, 1990: 200–201; Tchesunov, 1984: 1166–1170.

*Material examined*

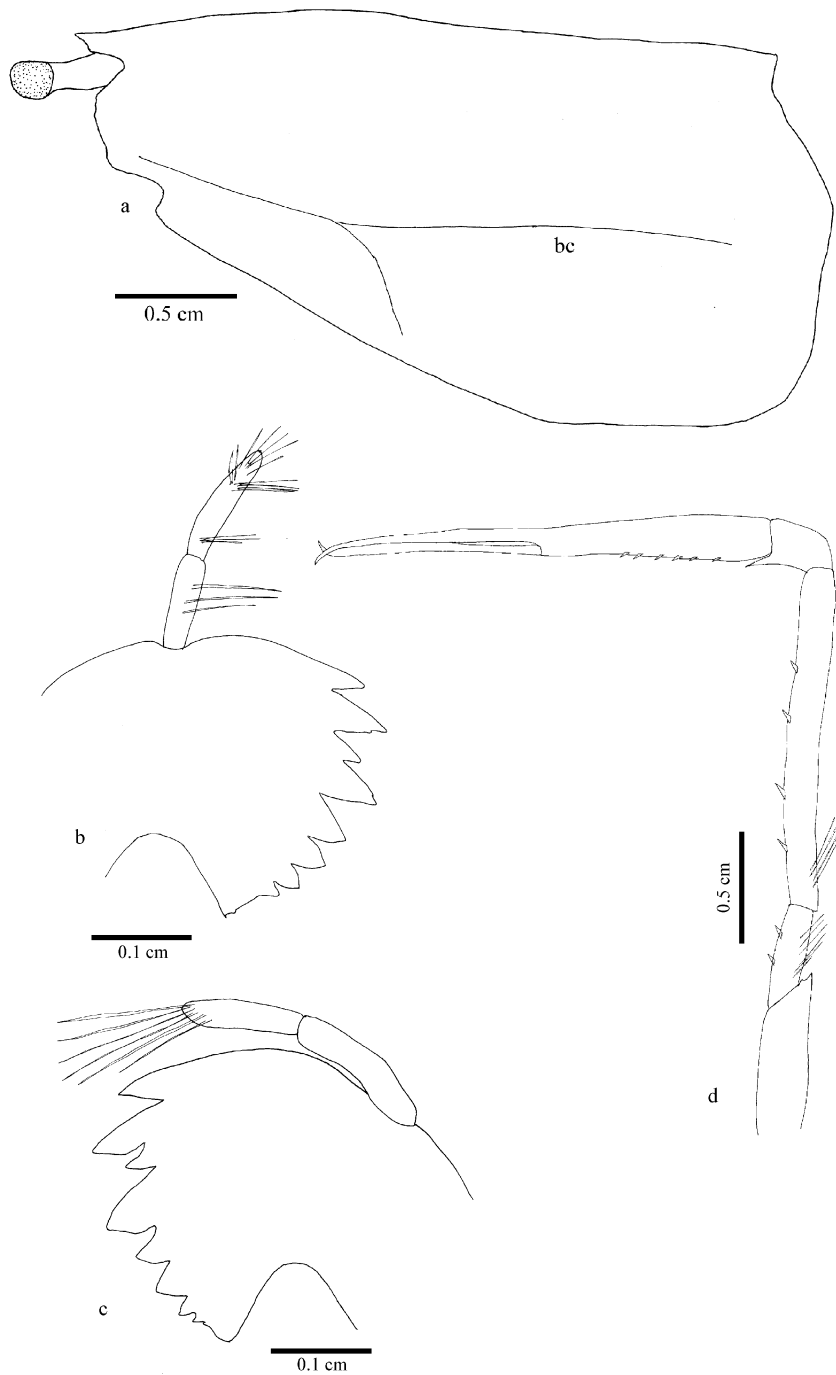
St. E0536, 20°24.008' S, 39°46.217' W to 20°27.001' S, 39°44. 843' W, 1293 m, 02/VII/2000, one male, cl: 40.4 mm, MNRJ 19526. St. E0550, 21°26.324' S, 39°49.113' W to 21°28. 583' S, 39°47.176' W, 1598 m, 07/VII/2000, one male, cl: 25.1 mm, MNRJ 19527.

*Description*

Rostrum acute, slightly curved upward, reaching half of ocular peduncle (Fig. 7a). Carapace with a dorsal sulcate carina. Eyes with cornea of approximately half of ocular peduncle; ocular peduncle with inner-lateral spine, not reaching cornea distal extremity. Mandible with 9-teeth incisor process; without molar process; with palp (Fig. 7b,c). Pereiopod 1, setose without spines and cuspidate setae. Pereiopod 2, propod with six cuspidate setae; carpus with a big inner spine; merus with 4-5 cuspidate setae; ischium with 2 cuspidate setae (Fig. 7d). Pereiopod 3 long, filiform, reaching palm of P2. Pereiopod 4 and pereiopod 5 reduced, with fingers very setose, P4 smaller than P5. Abdominal somite 4 with a dorsal spine. Endopod with marginal articulate plumose setae, with hooked setae on distal lobe (Fig. 8a,b). Appendix interna with terminal hooked setae (Fig. 8c,d). Appendix masculina reaching approximately half of appendix interna, with terminal articulated plumose setae (Fig. 8c). Telson long, sulcate on almost its entire length, with eight terminal cuspidate setae of different sizes, those outer ones are bigger (Fig. 8e).

*Distribution*

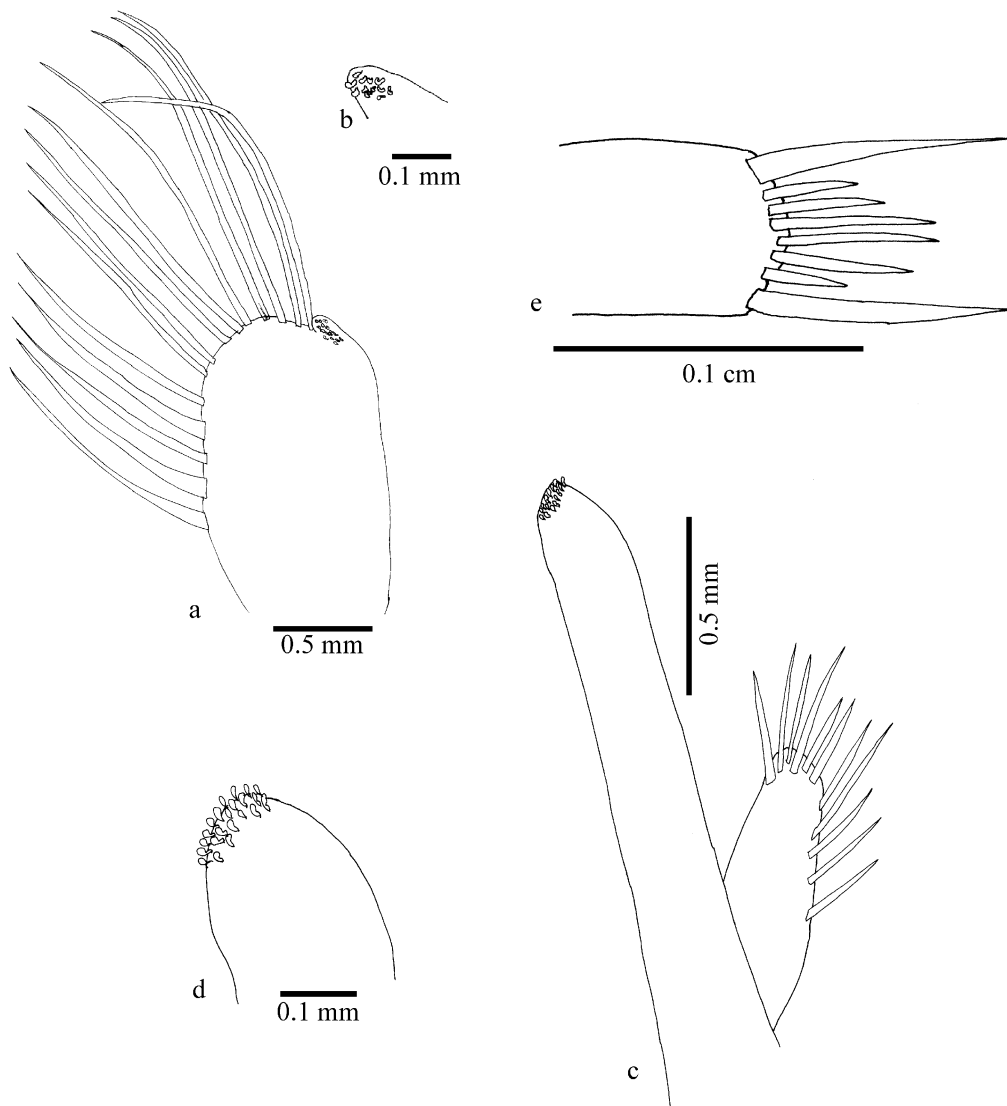
Atlantic Ocean; Indo-Pacific from southern Africa to west coasts of North and Central America. South and East coasts of Australia (Hanamura, 1989). Depth: From 500 to 5340 m (Kensley et al 1975).



**FIGURE 7.** *Parapasiphae sulcatifrons* Smith, 1884, one male, MNRJ 19527. a) Carapace, lateral view. (bc — branchiocardiac carina); b) Right mandible; c) Left mandible; d) Pereiopod 2.

*New records*

From Espírito Santo to Rio de Janeiro states.



**FIGURE 8.** *Parapasiphae sulcatifrons* Smith, 1884, one male, MNRJ 19527. a) Male endopod; b) Detail of male endopod; c) Appendix masculina and appendix interna; d) Detail of appendix interna; e) telson.

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