

Description of a new species of *Pseudharpinia* (Amphipoda: Phoxocephalidae: Harpiniinae) from Admiralty Bay, King George, Antarctic Peninsula

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Abstract

A benthic survey at the Admiralty Bay, Antarctic Peninsula, provided material for the description of a new harpiniin phoxocephalid, *Pseudharpinia macrospinosa* sp. nov. It is characterized by pereopod 7 posterior margin of basis strongly produced into a long upturned process and epimeron 3 hind process weakly produced. The new species was collected between 20 and 30 meters depth, by van Veen grab, during the the 23rd Brazilian Antarctic Programme Expedition (2003-2004 summer).

Key words: Amphipoda, Phoxocephalidae, Harpiniinae, *Pseudharpinia*, Antarctic Peninsula, new species.

Introduction

The Family Phoxocephalidae is world-wide distributed and is abundantly represented in all latitudes. Barnard and Drummond (1978) reported the importance of the Antarctic region as a centre of the evolution of the *Proharpinia* – *Pseudharpinia* – *Heterophoxus* group (Subfamily Harpiniinae). The harpiniin group appears to have an evolutionary flow commencing in the subantarctic islands, antiboreal South America and Antarctica and flowing northward primarily by submergence into the deep sea (Barnard and Drummond, 1978).

The generic diagnosis of *Pseudharpinia* is based mainly on the elongate flagellum of male antenna 2, the absence of eyes and strong ensiform process on article 1 of the antenna 2. Currently, this genus is represented by 14 species (Barnard and Karaman, 1991; Ren and Huang 1991; Jarret and Bousfield, 1994), 6 of which are recorded in the Antarctic region: *P. antarctica* Ren, 1991; *P. calcariaria* Bushueva, 1982; *P. cariniceps* Barnard, 1932; *P. dentata* Schellenberg, 1931; *P. obtusifrons* (Stebbing, 1888); *P. vallini* (Dahl, 1954).

The purpose of this study is to describe a new species of *Pseudharpinia*, *P. macrospinosa* sp. nov., from Admiralty Bay, King George Island, Antarctic Peninsula.

Methods

Specimens available for this study were collected by the 23rd Brazilian Antarctic Programme Expedition (2003-2004) (XXIII PROANTAR). The specimens were sampled by van Veen grab. Illustrations were made using an Axioscope Zeiss microscope camera lucida. Type specimens have been lodged at Museu de Zoologia, Universidade de São Paulo (MZUSP) and Museu Nacional, Universidade Federal do Rio de Janeiro (MNRJ). The crustacean setae classification proposed by Watling (1989) is herein adopted. Abbreviations used for the figures are as follows: HA, habitus; A, antenna; Md, mandible; Mxl, maxilla; Mxlp, maxilliped; P, pereopod; Gnt, gnathopod; Ep, Epimeron; U, uropod; T, telson.

Systematics

Family Phoxocephalidae Sars, 1895

Subfamily Harpiniinae Barnard and Drummond,
1978

Genus *Pseudbarpinia* Schellenberg, 1931

Type Species: *Pseudbarpinia dentata* Schellenberg, 1931

Diagnosis: Eyes absent. Article 1 of antenna 2 ensiform, article 3 with several facial setules. Gnathopods similar, article 5 free, palms oblique. Basis of pereopod 5 of narrow form. Epimera 1-2 without long facial brushes or posterior setae. Urosomite 3 without dorsal hook. Peduncle of uropod 1 without inter-ramal robust-seta. Rami of uropods 1-2 with robust setae continuously to apex. Uropod 3 rami longer than peduncle, bearing article 2 on outer ramus, with 2 apical setae (modified from Barnard and Karaman, 1991).

Pseudbarpinia macrospinosa sp. nov.

(Figs. 1-4)

Etymology: The specific name refers to the very long process of pereopod 7 basis.

Material examined: Holotype, mature female, 4.8 mm, 62°12'S-58°39'W, 20 m, Adriana Luiza Pimenta Sant'Iago de Carvalho col., 15/03/04, MZUSP 16981. Paratype 1 young male, 4.0 mm 62°12'S-58°39'W, 20 m, Helena Passeri Lavrado col., 27/01/03, MZUSP 16982; 62°12'S-58°39'W, 20 m, Helena Passeri Lavrado col., 27/01/03, 2 females, 4.0-4.5 mm, MZUSP 16983; 62°12'S-58°39'W, 20 m, Helena Passeri Lavrado col., 15/03/04, 2 females 3.9-4.3 mm, MZUSP 16984.

Diagnosis: Antenna 1, primary flagellum 5-articulate and accessory flagellum 3-articulate; pereopod 7 basis posterior margin strongly produced into a long upturned process, isquium distal margin projected; epimeron 3 hind process weakly produced; female uropod 3 peduncle with 3 ventral robust setae; male uropod 3 peduncle with 5 ventral robust setae; telson fully cleft, apices broadly rounded.

Description: Holotype, female 4.8 mm. Rostrum large, forwardly produced, covering antenna 1 pe-

duncle and flagellum first article together, slightly downcurved at acute apex; lower margin oblique, without distinct spine on ventral corner. Antenna 1 peduncle article 1 more than 2X longer than article 2, ventral margin of article 2 with 5-6 plumose setae; primary flagellum 5-articulate; accessory flagellum 3-articulate, both flagelli with article 1 elongate equal in length to the next two articles. Antenna 2 article 1 with ensiform process; ventral margin of article 3 with 5-7 long plumose setae and 2 distal robust setae, dorsal corner with 4 robust setae; article 4 and 5 subequal in length and both shorter than article 3; flagellum 5-articulate.

Right mandible molar not triturative with 1 serrate robust seta; accessory setal row with 7 serrate robust setae; lacinia mobilis 4-dentate and incisor 5-dentate; palp articles 2 and 3 subequal in length and both longer than article 1, article 3 with 3 apical setae. Maxilla 1, inner lobe with 1 apical papose seta and 1 apical simple seta; outer plate with 9 apical serrate robust setae; article 2 of palp with 1 apical plumose seta and 1 robust seta. Maxilla 2 inner lobe with 3 apical robust plumose setae and 3 apical simple setae; outer lobe with a row of 8 mixed simple and plumose setae. Maxilliped inner lobe with 2 apical plumose setae and 1 short apical robust seta; outer lobe with 6 curved robust setae unequal in length; palp article 4 with elongate unguis distinct.

Coxa 1 broader than coxa 2, ventral margins of both coxae with 6-7 long plumose setae. Gnathopods 1 and 2 closely similar, except coxae, both with propodus oval, palmar margins oblique, with a row of short robust setae and defined by a distinct robust seta. Coxae 3 and 4 lower margins with 7 and 6 long plumose setae, respectively. Pereopods 3 and 4 similar, both with basis slender, with a long simple seta on anterior margin; isquium short; merus almost 1.5X longer than carpus, with plumose setae on posterior margin; carpus and propodus subequal in length on pereopod 3; carpus posterior margin with a row of simple and plumose setae and with 2 long stout setae on postero-distal margin; propodus slender than carpus with 2-3 setae on postero-distal margin; dactylus 0.7X propodus length and curved. Coxa 5 anterior margin weakly lobed, antero-distal corner with 2 plumose setae; basis slender and 2X merus length, with plumose setae on both distal margins; isquium short; merus, carpus and propodus with

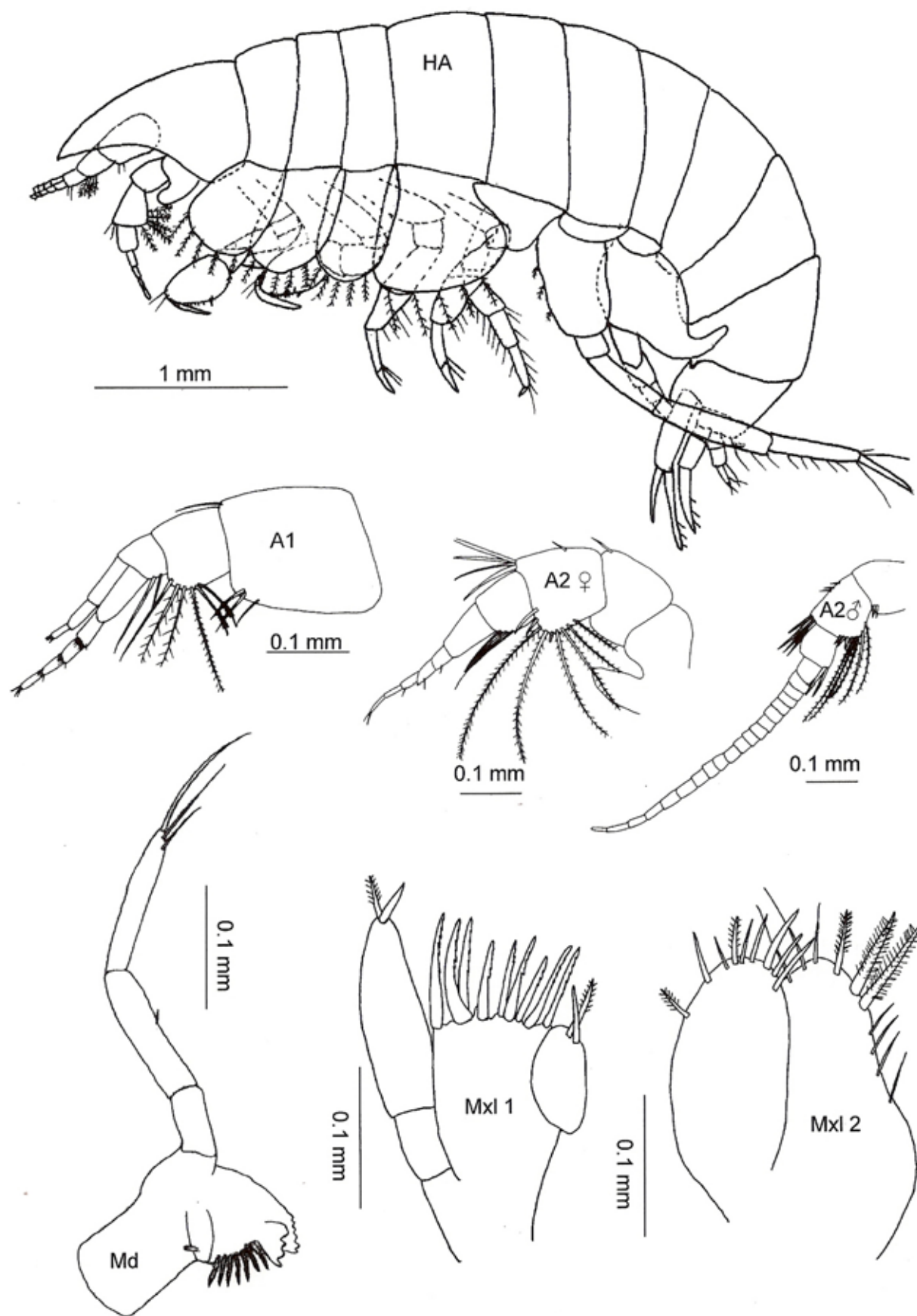
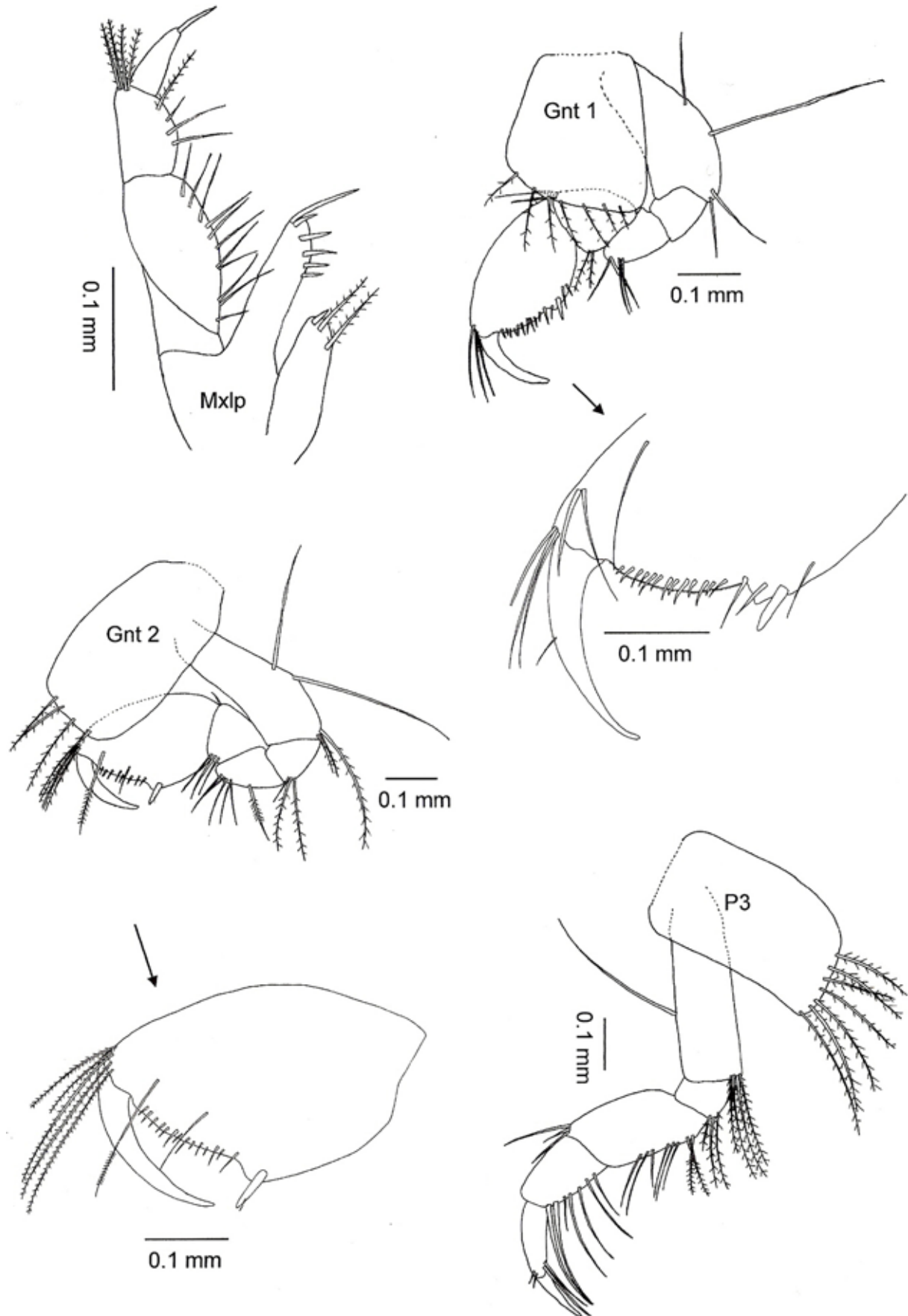


Figure 1. *Pseudharpinia macrospinosa* sp. nov. Holotype, female, 4.8 mm, 62°12'S-58°39'W, 20 m, MZUSP 16981. Paratype, male, 4.0 mm, 62°12'S-58°39'W, 20 m, MZUSP 16982.



Nauplius

Figure 2. *Pseudbarpinia macrospinosa* sp. nov. Holotype, female, 4.8 mm, 62°12'S-58°39'W, 20 m, MZUSP 16981.

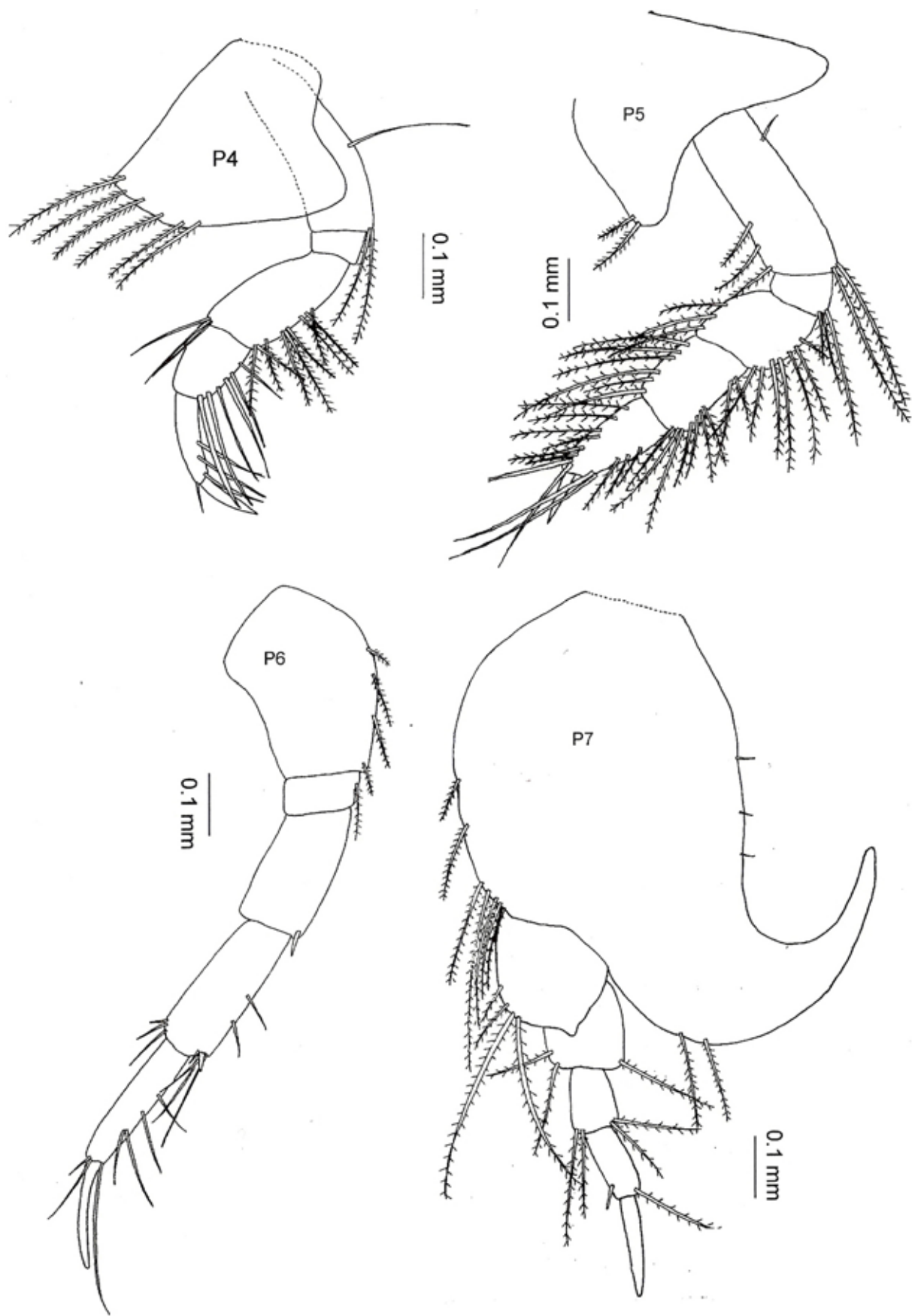


Figure 3. *Pseudbarpinia macrospinosa* sp. nov. Holotype, female, 4.8 mm, 62°12'S-58°39'W, 20 m, MZUSP 16981.

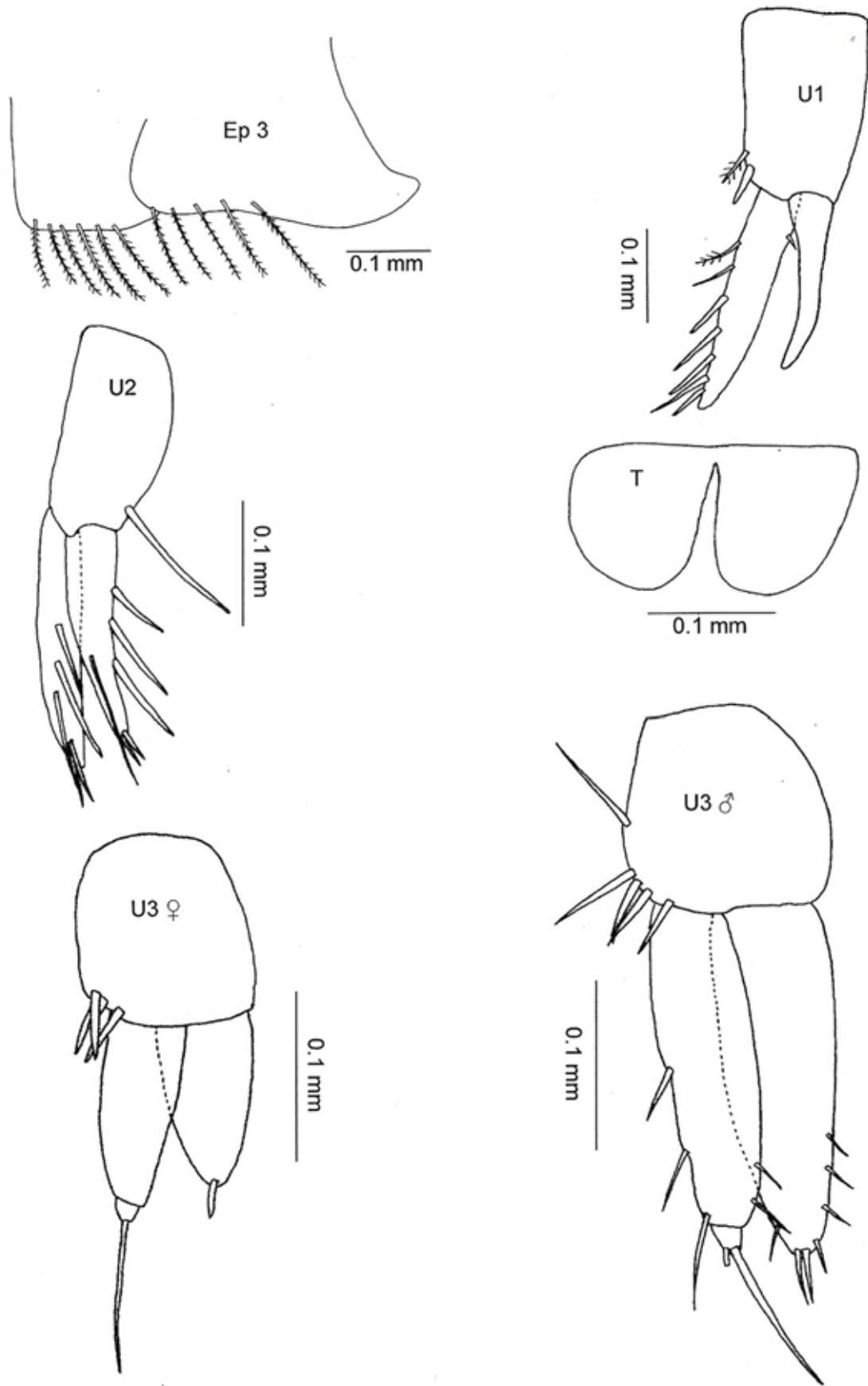


Figure 4. *Pseudbarpinia macrospinosa* sp. nov. Holotype, female, 4.8 mm, 62°12'S-58°39'W, 20 m, MZUSP 16981. Paratype, male, 4.0 mm, 62°12'S-58°39'W, 20 m, MZUSP 16982.

anterior and posterior margins with plumose setae; carpus and propodus subequal in length and both 1.3X merus length; propodus inflated proximally; dactylus very slender, less than 0.5X propodus length. Pereopod 6 poorly setose; basis 1.2X merus length; merus postero-distal corner with a robust seta; carpus and propodus subequal in length; carpus postero-distal corner with 4 long setae and 1 robust seta; propodus with a row of long setae on posterior margin; dactylus slender and 0.8X propodus length. Pereopod 7 basis greatly expanded, posterior margin strongly produced into a long upturned process, postero-distal margin almost reaching of merus end; isquium distal margin projected, anterior margin with long plumose setae; merus, carpus and propodus subequal in length; merus and carpus with 1-2 long plumose setae on antero-distal and postero-distal margins; propodus antero-distal corner with a robust seta and postero-distal corner with a long plumose seta; dactylus 1.3X propodus length.

Epimeron 3 hind process weakly produced, ventral margin with long plumose setae. Uropod 1 peduncle subequal in length to inner ramus, with a robust seta and a papose seta on distal margin; outer ramus longer than inner ramus, bearing a row of 6 dorsal robust setae; inner ramus naked. Uropod 2 peduncle shorter than rami with a long robust seta distally; rami subequal in length and both with 3 dorsolateral long robust setae and 2 apical robust setae. Uropod 3 peduncle subequal in length to inner ramus, with 3 ventral robust setae on distal margin; outer ramus weakly longer than inner ramus, article 2 short with a long apical seta; inner ramus with a short apical seta. Telson lobes only fused basally, apices broadly rounded, naked.

Male (5.5 mm): Antenna 2 article 3 ventral margin with 5 long plumose setae, ventro-distal corner with 4 robust setae, dorso-distal corner with 4 long robust setae; article 4 with 2 long robust setae on ventro-distal corner; flagellum 19-articulate. Uropod 3 peduncle shorter than rami with 5 long robust setae on distal margin; rami subequal in length; outer ramus article 1 with outer margin with 3 long robust setae and 2 robust setae on inner margin, article 2 short with 2 long apical setae (in example broken); inner ramus with 4 apical robust setae and 3 robust setae on outer margin.

Remarks

The earliest descriptions of some of the *Pseudbarpinia* antarctic species (such as *P. carinceps* Barnard, 1932; *P. dentata* Schellenberg, 1931; *P. obtusifrons* (Stebbing, 1888); *P. vallini* (Dahl, 1954), and especially the figures, do show sufficient details to facilitate comparison. Later descriptions (*P. calcariaria*, Bushueva, 1982 and *P. antarctica*, Ren and Huang, 1991) are more completely described and better illustrated. However, *Pseudbarpinia macrospinosa* sp. nov. is immediately recognizable among others species of the genus in having pereopod 7 basis posterior margin strongly produced into a long upturned process; the postero-distal corner of epimeron 3 weakly produced is a further character which confirms the new identity.

Pseudbarpinia vallini is the only other species of the genus that has pereopod 7 distal margin of basis with a projection, but this is weaker and not pointed than that observed in *P. macrospinosa* sp. nov. Although the female type-specimen described by Dahl (1954) was an incomplete specimen and the male was not known, some differences with respect to *Pseudbarpinia macrospinosa* sp. nov. are noted. These differences are: (1) telson fused only basally with apices broadly rounded in the former, instead of half fused and apices weakly pointed as in *P. vallini*; (2) female uropod 3 peduncle bears 3 long distal robust setae in *P. macrospinosa* sp. nov. and naked in *P. vallini*; (3) pereopod 7 isquium distal margin which is pointed in *P. macrospinosa* sp. nov. and weak rounded in *P. vallini*.

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