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A new species of *Aristias* Boeck, 1871 (Amphipoda: Gammaridea: Aristiidae) from Aysén Region, Chile

Una especie nueva de *Aristias* Boeck, 1871 (Amphipoda: Gammaridea: Aristiidae) de la Región de Aysén, Chile

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Abstract

A new species of *Aristias* is described from the Aysén Region, southern Chile. The new taxon is similar to *A. antarcticus* Walker, 1906; however differs of all previous record of this species in Southern Ocean by a combination of characters: the anterior margin of lateral cephalic lobe is straight; the upper lip is bounded by a pit, not distinctly projecting in front of the epistome; the posterior margin of the epimeron 3 is smoothly crenulated; the inner ramus of uropod 3 is shorter than outer ramus, while the lobes of the telson are subtriangular. A complete description and illustrations of *Aristias linnaei* n. sp. are provided, and its relationship with similar species is discussed.

Key words: Chile, Lysianassoidea, marine amphipod, new species.

Resumen

Se describe una especie nueva del género *Aristias* de aguas marinas de la Región de Aysén, sur de Chile. El nuevo taxón es similar a *A. antarcticus* Walker, 1906; sin embargo difiere de todos los registros previos de esta especie en los océanos del sur por una combinación de caracteres: el margen anterior del lóbulo cefálico lateral es recto; el labio superior está delimitado por una fosa, no proyectado notablemente frente al epistoma; el margen posterior del epímero 3 es ligeramente crenulado; la rama interna del urópodo 3 es más corta que la externa y los lóbulos del telson son subtriangulares. Se proporciona una descripción completa e ilustraciones de *Aristias linnaei* n. sp. y se discute su relación con especies similares.

Palabras clave: anfípodo marino, Chile, especie nueva, Lysianassoidea.

INTRODUCTION

The genus *Aristias* Boeck, 1871 is worldwide distributed and currently includes 33 species (Stoddart & Lowry, 2010; Lowry & De Broyer, 2014), with at least three species reported from southern oceans: *Aristias antarcticus* Walker, 1906, *A. collinus* K. H. Barnard, 1932 and *A. excavatus* Kilgallen, 2010 (see Kilgallen, 2010). The presence of this group in Chilean waters was first mentioned by Schellenberg (1931), who cited specimens of *A. antarcticus* from Cape Valentine and Beagle Channel, in the Magellan Region (see Fig. 1). Subsequently, these records were mentioned by González (1991) and González *et al.* (2008); however there are no new records of specimens of *Aristias* in the country.

An assessment of the genus *Aristias* in Antarctic waters showed that the taxonomic status of several records of *A. antarcticus* is unclear due to incomplete descriptions (Kilgallen, 2010), and possibly several undescribed species are already recorded or misidentificated in the literature (Stoddart & Lowry, 2010).

An analysis of some collections of the superfamily Lysianassoidea from Chile showed no specimens of *A. antarcticus*; however, material referable to an undescribed species from the Aysén Region was found. In this paper, a description of *Aristias linnaei* n. sp. is presented, giving illustrations and discussing his morphological relationships with other records of the genus, principally from the Southern Ocean.

MATERIAL AND METHODS

Three specimens were obtained from sediment samples, fixed immediately after collection in 10% formalin and preserved in laboratory with 75% ethanol. Type specimens were deposited in the Museo Nacional de Historia Natural (MNHNCL), Santiago, Chile and Museo de Zoología, de la Universidad de Concepción (MZUC), Concepción, Chile (see

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Fig. 1. Geographic records of the genus *Aristias* in Chile. A: type locality of *A. linnaei* n. sp.; B and C: known localities for *A. antarcticus* Walker, 1906 in Chile (see Schellenberg, 1931).

Fig. 1. Registros geográficos del género ***Aristias*** en Chile. A: localidad tipo de ***A. linnaei*** n. sp.; B y C: localidades conocidas para ***A. antarcticus*** Walker, 1906 en Chile (ver Schellenberg, 1931).

Type specimens section). Appendices of dissected specimen were mounted in pure glycerin sealed with nail varnish. The body length, drawings, and general terminology follow the style of a previous paper (see Pérez-Schultheiss, 2013). The nomenclature for the mandibular palp setae follows Lowry & Stoddart (1993).

Systematics

Order Amphipoda Latreille, 1816
Suborder Gammaridea Latreille, 1802
Superfamily Lysianassoidea Dana, 1849
Family Aristiidae Lowry & Stoddart, 1997
Genus *Aristias* Boeck, 1871
***Aristias linnaei* n. sp.**
(Figs. 2-4)

Type specimens: *Holotype* ♂: ***dissected specimen*** (MNHNCL AMP-15001), 4.67 mm, Errázuriz Channel, West of Traiguén Island (45°31'S; 73°45'W), Aysén Region, 8-III-2008, Coll. C. Manque, gravelly sand, 48.4 m depth; carcass and appendages mounted in a slide. *Paratypes:* ***undissected*** ♂ (MZUC N° 43632), 4.18 mm and ***undissected presumably*** ♀ (MZUC N° 43633), 5.05 mm, both same data as holotype. All specimens are apparently immature. Males present very small penial papillae, and presumably female has not developed oostegites.

Etymology: The specific name of the new species is proposed as a tribute to all my colleagues in the "Laboratorio Linnaeus Ltda.".

Type locality: Errázuriz Channel, West of Traiguén Island, Aysén Region, Chile (Fig. 3).

Diagnosis: Lateral cephalic lobes broadly rounded, nearly straight along anterior margin; eyes presents. Epistome and upper lip bounded by pit, upper lip not distinctly projecting in front of epistome. Maxilla 1 outer plate with 11 setal-teeth. Gnathopod 2 coxa well developed. Pereopod 3 coxa slightly expanded distally. Pereopods 5-7 with small spurs on anterodistal corner of propodus; coxa 5 and 6 producing posterior lobe, rounded ventrally. Epimeron 3 posterior margin smoothly crenulated, subacute. Uropod 3 outer ramus longer than inner ramus; outer ramus article 2 half the length of article 1. Telson deeply cleft to 75% of length, lobes subtriangular.

Description: holotype (male). *Head* deeper than long; lateral cephalic lobes broadly rounded, nearly straight along anterior margin; rostrum present, shorter than lateral cephalic lobes; eyes present. *Antenna 1* peduncle article 2 about half the length of article 1; primary flagellum 6-articulate, accessory flagellum 3-articulate, reaching the third article of primary flagellum. *Antenna 2* article 3 short, shorter than long; article 4 the longest, but nearly as long as article 5; flagellum 6-articulate; calceoli absent. Mouthpart bundle subquadrate. *Epistome* and *upper lip* bounded by pit; upper lip as produced as epistome. *Mandible* molar a sparsely-setose flap; palp attached centrally, with 2 distal A-2 setae, one short D-3 seta, one short B-3 seta, and 5 E-3 setae, article 3 slightly falcate, about 70% the length of article 2; incisor with 2 small distal and 2 small latero-subdistal teeth on right mandible; lacinia mobilis not discernible (lost?); *Maxilla 1* inner plate broad, strongly setose with 5 pappose setae along margin; outer plate with 11 distal teeth in a 9/2 arrangement; palp 2-articulate with 2 strong robust setae and distinct serration along the apical margin. *Maxilla 2* inner plate broad, outer plate narrower. *Maxilliped* inner plate broad, apically tapering with 6 pappose setae; outer plate large, reaching to midway of palp article 3, apically rounded with 1 simple setae, inner margin with row of 3 slender robust setae; palp well developed, broad, 4-articulate, dactylus lacking unguis.

Gnathopod 1 parachelate; coxa vestigial, hidden by coxa 2; basis long, lacking setae; ischium short, nearly as

Fig. 2. *Aristias linnaei* n. sp., male holotype (MNHNCL AMP-15001). Habitus.

Fig. 2. ***Aristias linnaei*** n. sp., holotipo macho (MNHNCL AMP-15001). Hábito.

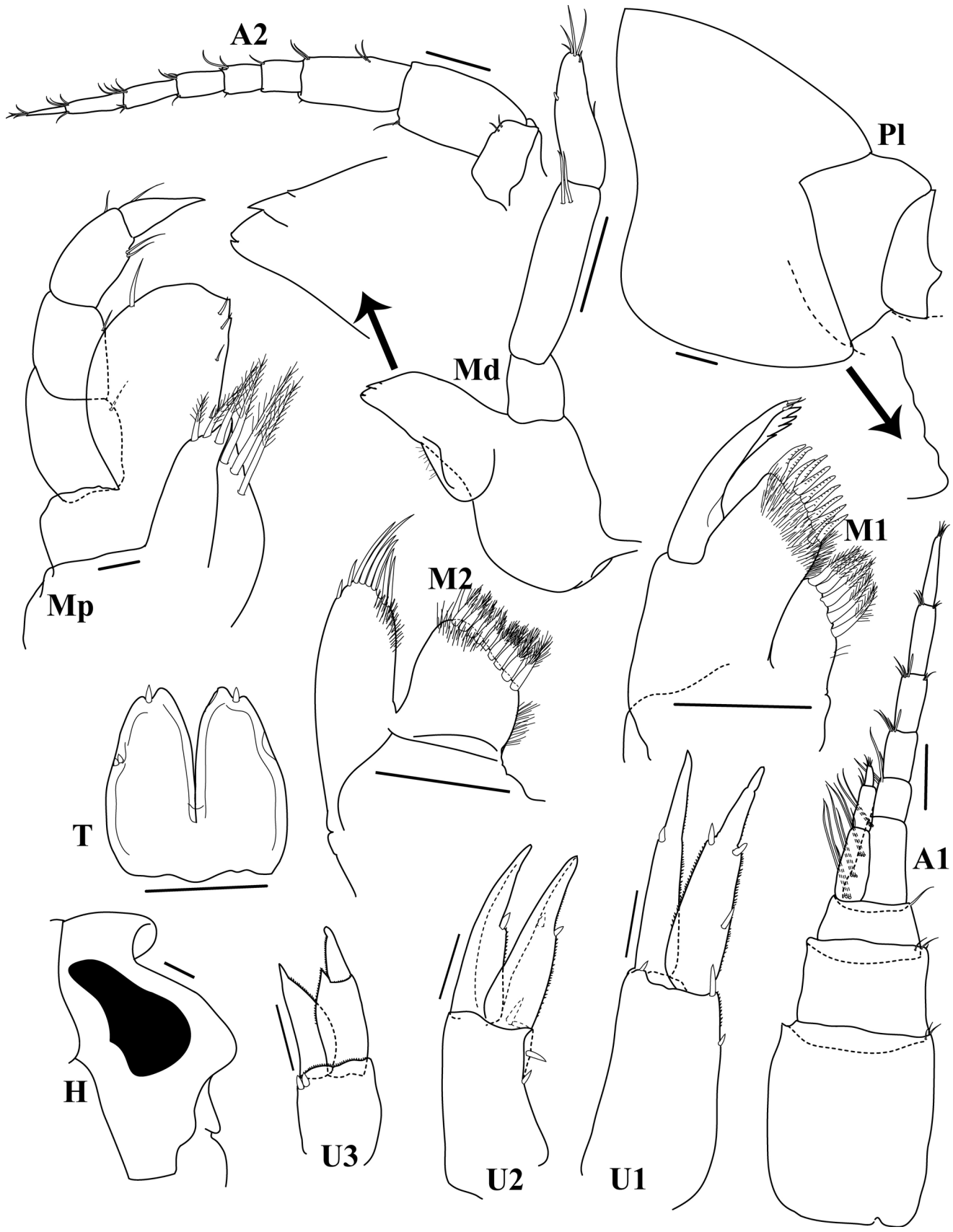

Fig. 3. *Aristias linnaei* n. sp., male holotype (MNHNCL AMP-15001). A1 and A2: antenna 1 and antenna 2, Md: right mandible, M1 and M2: maxilla 1 and maxilla 2, Mp: maxilliped, U1-U3: uropods 1 to 3, H: head, Pl: pleosomite 3 and urosomite 1, T: telson. Scale bars: 0.1 mm.

Fig. 3. *Aristias linnaei* n. sp., holotipo macho (MNHNCL AMP-15001). A1 y A2: antena 1 y antena 2, Md: mandíbula derecha, M1 y M2: maxila 1 y maxila 2, Mp: maxilípedo, U1-U3: urópodos 1 a 3, H: cabeza, Pl: pleosomito 3 y urosomito 1, T: telson. Escalas: 0.1 mm.

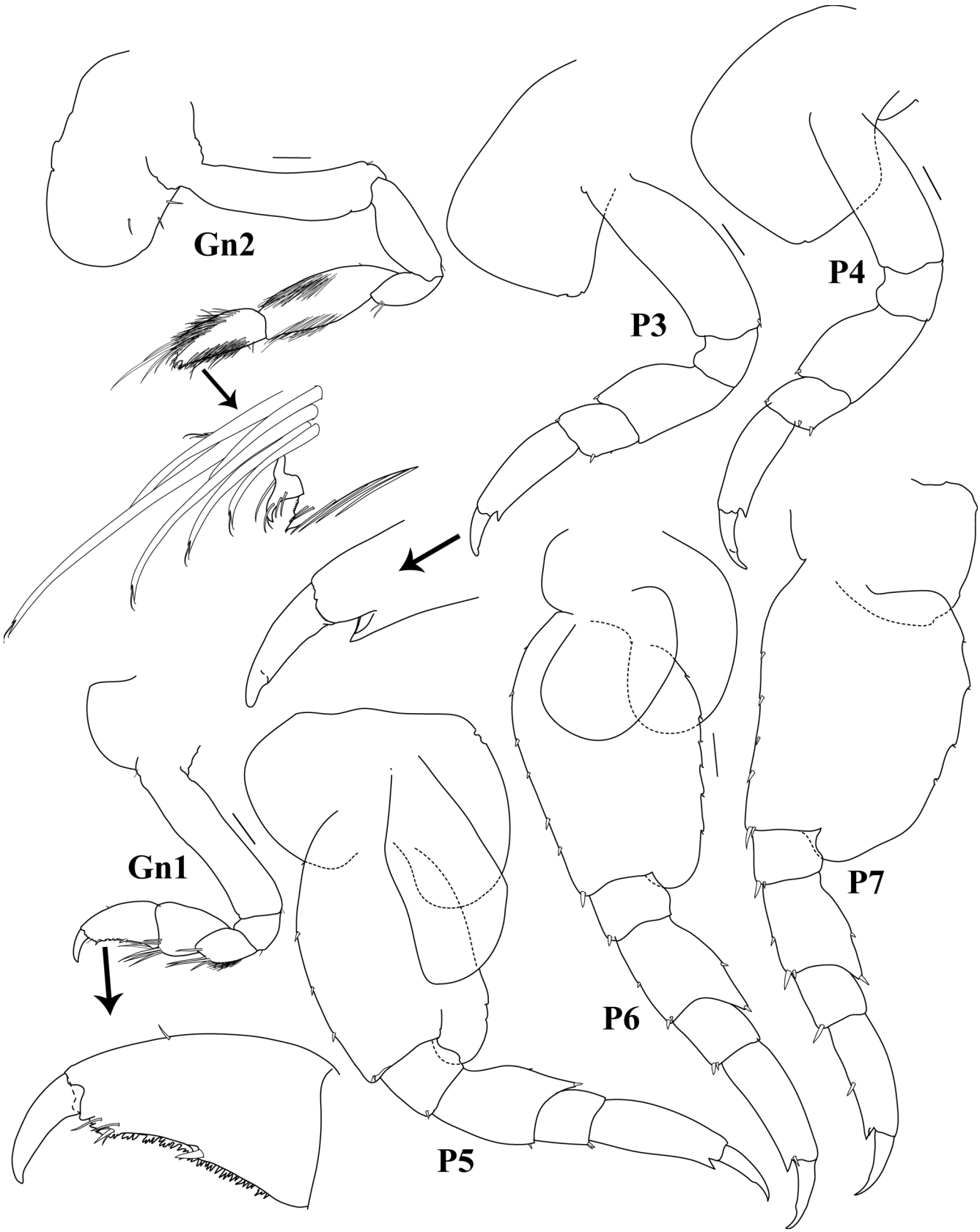

Fig. 4. *Aristias linnaei* n. sp., male holotype (MNHNCL AMP-15001). Gn1 and Gn2: gnathopods 1 and 2, P1-P7: pereopods 1 to 7. Scale bars: 0.1 mm.

Fig. 4. *Aristias linnaei* n. sp., holotipo macho (MNHNCL AMP-15001). Gn1 y Gn2: gnatópodos 1 y 2, P1-P7: pereópodos 1 a 7. Escalas: 0.1 mm.

long as breadth; carpus slightly shorter than propodus; propodus tapering distally, posterior margin very slightly concave, minutely serrate, with 2 strong setae, the bigger placed in half of the length of posterior margin; dactylus simple. *Gnathopod 2* minutely chelate, coxa well developed, slightly smaller than coxa 3; ischium and carpus very long, with posterior margin straight in the first and slightly convex in the second; propodus long, posterior margin straight. *Pereopod 3* coxa slightly expanded distally; merus expanded anteriorly; carpus short, as long as broad; propodus long, slightly longer than merus, with spur on posterodistal corner. *Pereopod 4* coxa longer than broad with posteroventral lobe; merus expanded anteriorly; carpus short, as long as broad; propodus long, slightly longer than merus, with spur on posterodistal corner. *Pereopod 5* coxa posterior lobe strongly produced, rounded ventrally; basis longer than broad, posterodistal corner rounded and produced into a lobe; merus slightly expanded posteriorly; carpus short, as long as broad; propodus long, slightly longer than merus, with a spur at anterodistal corner. *Pereopod 6* coxa posterior lobe strongly produced, rounded ventrally; basis longer than broad, crenulate posteriorly, posterodistal corner rounded and produced into a lobe; merus expanded posteriorly; carpus very slightly longer than broad; propodus long, longer than merus with a spur at anterodistal corner. *Pereopod 7* coxa not bilobate; basis longer than broad, crenulate and expanded posteriorly, posterodistal corner broadly rounded and produced into a lobe; merus slightly expanded posteriorly; carpus very slightly longer than broad; propodus long, longer than merus, with a spur at anterodistal corner.

Epimeron 1 anterodistal corner obtuse, almost rounded. *Epimeron 2* posteroventral corner subquadrate. *Epimeron 3* posterior margin slightly crenulate, posteroventral corner subacute, not produced. *Urosomite 1* with dorsal depression followed posteriorly by rounded hump. *Uropod 1* peduncle subequal in length to rami, armed with a few robust setae and serrate medial-distally; rami subequal in length, armed with a robust setae and minutely serrate medially in the exopodite and medially and laterally in endopodite. *Uropod 2* peduncle subequal in length to rami, with lateral row of 2 robust setae; rami subequal in length, with 1 robust seta and minutely serrate along one margin. *Uropod 3* peduncle slightly shorter than rami, armed with 2 robust subdistal setae and minutely serrate distally; outer ramus longer than inner ramus, 2 articulate with article 2 more than half the length of article 1; rami minutely serrate, along outer margin in inner ramus and along medial margin in outer ramus. *Telson* as long as wide, deeply cleft to 75% of length, lobes subtriangular, each bearing 2 lateral and 1 apical robust seta.

Remarks

The systematics of the genus *Aristias* in Southern Ocean has been confused, because many specimens were attributed to *A. antarcticus* Walker, 1906 despite the presence of slight differences between them (see Killgallen, 2010). Many of these recorded specimens need to be reanalyzed in detail (Schellenberg, 1926; Barnard, 1930, 1932; Nicholls, 1938; Bellan-Santini & Ledoyer, 1974; De Broyer, 1983), including the records known for Chilean waters (Schellenberg, 1931, see Fig. 1).

The new species here described is morphologically similar to *Aristias antarcticus* Walker, 1906; however, *Aristias linnaei* n. sp. can be distinguished by the following characters: *Aristias linnaei* n. sp. differs from *A. antarcticus sensu* Walker (1906) in the subtriangular lobes of the telson (vs. subquadrate or rounded), the setation pattern on the third article of mandibular palp (only one D-3 seta in *A. linnaei* n. sp., vs. several D-3 setae in *A. antarcticus* Walker) and the parachelate gnathopod 2 (vs. subchelate).

Aristias antarcticus sensu Schellenberg (1926) present a different setation pattern on the third article of mandibular palp (4 D-3 setae in the figure of Schellenberg, 1926), the mandibular incisor is truncate, subrectangular and apparently unarmed (vs. triangular and armed with 4 distal-subdistal teeth in *A. linnaei* n. sp.) and a different structure of pereopod 6, specially the widest basis posterodistal lobe.

The new species differs from *A. antarcticus sensu* Barnard (1930) in the lobes of the telson subtriangular (vs. subquadrate) and the posterior margin of the third epimeron slightly crenulate (vs. smooth). Furthermore, differs from *A. antarcticus sensu* Barnard (1932) in the upper lip separated from the epistome by a pit (vs. by a slit), from *A. antarcticus sensu* Nicholls (1938) by the palm of gnathopod 1 (2 strong setae in posterior margin, vs. 4) and the outer plate of maxilliped, and the lateral cephalic lobes.

Aristias antarcticus sensu Bellan-Santini & Ledoyer (1974) have the pereopods 5 to 7 proportionally more thickened, and especially in pereopod 7, the basis is longer than the segment from ischium to dactylus together. Additionally, palm of gnathopod 1 and uropodal rami present more marginal strong setae.

The specimens differs from *A. antarcticus sensu* De Broyer (1983) in the palm of gnathopod 1 with 2 strong setae in posterior margin (vs. 4), the absence of marginal armaments in the basis, ischium, merus and carpus of pereopod 4 (vs. presence of marginal setae) and the presence of only one distal strong seta on each lobe of telson (vs. 2 strong setae).

The setation pattern of the third article of mandibular palp show a special pattern, comparable to *Aristias bicornuta* Ortiz *et al*., 2007, without rows of slender D-3 setae (nomenclature of Lowry & Stoddart, 1993), but one strong setae. The setation in the palm propodus of gnathopod 1 includes only one strong seta (vs. at least 3 in other Southern Ocean *Aristias*).

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