INSTITUTO DE BIOCIÊNCIAS
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GIOVANNA DE OLIVEIRA DOS REIS

NOVAS ESPÉCIES DO GÊNERO *Hyalella* Smith, 1874 (MALACOSTRACA, AMPHIPODA, HYALELLIDAE) PARA O ESTADO DE SANTA CATARINA, BRASIL

PORTO ALEGRE
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Dissertação apresentada ao Programa de Pós-Graduação em Biologia Animal, Instituto de Biociências da Universidade Federal do Rio Grande do Sul, como requisito parcial à obtenção do título de Mestre em Biologia Animal.
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Orientador(a): Prof. Drª. Paula Beatriz Araujo
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PORTO ALEGRE

2022

“Estou de pé
sobre o sacrifício
de milhões de mulheres antes de mim
pensando
no que eu posso fazer
para deixar esta montanha ainda mais alta
para que as mulheres que venham depois de mim
possam ver mais longe.”
(Legado - Rupi Kaur)

Em memória de minha mãe e Tia Ceia.

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SUMÁRIO

RESUMO

O gênero *Hyalella* Smith, 1874 ocorre exclusivamente nas Américas, contando com 88 espécies descritas. No Brasil são conhecidas 37 espécies, sendo que a região sul apresenta o maior número de registros. No presente estudo são descritas duas novas espécies do gênero para o estado de Santa Catarina, com registro de um novo tipo de seta. Dentre as características que definem *Hyalella* sp. n. 1 têm-se a antena 1 com duas setas plumosas; a antena 2 com quatro setas plumosas e quatro setas paposas; o gnatópodo com seta paposa bifurcada e comb-scales desde a base até o carpo, além de sete setas paposas na margem interna do própodo; no gnatópodo 2 apenas o mero e o carpo possuem setas paposas bifurcadas e o dáctilo possui a margem interna fortemente serrilhada no macho; nesta espécie as microtríquias estão presentes nas antenas, maxilípodos, gnatópodos, pereópodos, urópodos e télson. Já *Hyalella* sp. n. 2 caracteriza-se por antena 1 com uma seta plumosa; antena 2 com cinco setas paposas; gnatópodo 1 com setas paposas bifurcadas desde a base até o própodo e palma levemente serrilhada na fêmea; na coxa do gnatópodo 2 da fêmea estão presentes duas setas paposas laterais, desde a base até o carpo estão presentes setas paposas bifurcadas e a palma é levemente serrilhada no macho; setas simples estão presentes no pedúnculo e no ramo interno do pleópodo; nesta espécie as microtríquias não ocorrem no urópodo 2, nos demais ocorrem semelhante à *Hyalella* sp. n. 1. Neste estudo aumentamos o conhecimento sobre o gênero *Hyalella* com a descrição de duas novas espécies. Além disso, descreve-se um novo tipo de cerda. Esperamos que este estudo seja útil em estudos futuros com *Hyalella* e com as espécies aqui descritas. Além de incentivar a conservação dos ambientes aquáticos de água doce e sua fauna.

Palavras-chave: crustáceos, Peracarida, dulcícola

INTRODUÇÃO GERAL

Nos últimos anos diversas áreas ambientais vêm sendo exploradas, elevando os registros de espécies e contribuindo para o conhecimento acerca da sua diversidade (Castiglioni *et al.* 2020; Talhaferro *et al.* 2021b). No entanto, existe uma grande falta de informações em relação a espécies que habitam águas rasas (Thorp & Covich 1991). Estes ambientes aquáticos servem como habitats de diversos táxons não registrados ou com presença limitada que, considerando as alterações ambientais, correm o risco de se extinguir antes da devida identificação e de ter-se conhecimento a respeito de sua história de vida (Talhaferro *et al.* 2021b). Dentre esses táxons encontram-se os crustáceos dulcícolas que desempenham importante papel no funcionamento de ecossistemas, atuando nas trocas de energia na teia alimentar por meio do consumo de fitoplâncton e matéria orgânica dissolvida, por exemplo (Covich *et al.* 2010).

A superordem Peracarida Calman, 1904 Malacostraca Latreille, 1802, classificada na Classe Malacostraca, ocorre em ambientes terrestres, marinhos, de mar profundo e cavernícolas (Poore 2005). Os peracáridos caracterizam-se por apresentar marsúpio (Borowsky 1991), sendo seis placas laminadas (oostegitos) que se localizam na base das coxas 2 a 5, com função de fertilização e incubação dos ovos (Chapman 2007). Sendo assim, as fêmeas carregam no marsúpio os ovos e juvenis até estarem em um estágio relativamente avançado de desenvolvimento (Thorp & Covich 1991).

Além disso, os peracáridos possuem desenvolvimento direto, no qual, os juvenis ao eclodirem exibem morfologia similar ao adulto, sem aspectos sexuais secundários (Borowsky 1991). Dentro da superordem Peracarida, diversas são as formas e morfologias corporais, um exemplo é a Ordem Amphipoda Latreille, 1816 com carapaça ausente e corpo comprimido lateralmente (Väinölä *et al.* 2008; Rogers *et al.* 2020).

Formada por 233 famílias, 1168 gêneros e mais de 10 mil espécies, Amphipoda é uma das mais diversas e significativas ordens entre os peracáridos (Lowry & Myers 2017). Compõem a ordem as subordens Pseudingolfiellidae, Hyperiidea, Colomastigidea, Hyperiopsidea, Senticaudata e Amphilochidea (Lowry & Myers 2017). Dentre as características que definem os anfípodos, destaca-se a cabeça com olhos sésseis, presença de brânquias coxais, abdômen com seis segmentos, últimos três pares de pleópodos modificados em urópodos, além de possuir pleópodos e urópodos bem desenvolvidos (Lowry & Myers 2017). Os anfípodos de água doce representam cerca de 19% da ordem, desempenhando um importante papel ecológico no ecossistema aquático, servindo como fonte de nutrientes e energia para níveis tróficos superiores (Moore 1975). Os hábitos alimentares são variados, podem ser herbívoros, detritívoros, carnívoros ou onívoros e com comprimento corporal variando de 5 a 15 mm (Väinölä *et al.* 2008).

A família Hyalellidae Bulycheva, 1957 é composta unicamente por espécies dulcícolas do gênero *Hyalella* Smith, 1874. Se caracteriza pelo comprimento da antena 1 ser maior comparado ao pedúnculo da antena 2, ausência de um palpo na mandíbula, palpo do maxilípodo com artículo 2 apresentando comprimento subigual ao artículo 1 e ausência de ramo interno no urópodo 3 (Rogers *et al.* 2020). Nas espécies de Hyalellidae, o segundo par de gnatópodos do macho possui um dimorfismo sexual, por meio de um crescimento alométrico do própodo (Wellborn 2000). Relacionado a isso, diversas modificações ocorrem na morfologia dos apêndices e no surgimento das estruturas cuticulares durante os estágios pós-marsupiais em *Hyalella pleoacuta* González, Bond-Buckup e Araujo, 2006 (Garcia-Schroeder & Araujo 2009). No entanto, não é possível distinguir os machos e fêmeas através do segundo par de gnatópodos nesses estágios iniciais do desenvolvimento ontogenético (Garcia-Schroeder & Araujo 2009).

Desde que foi descrito por Smith (1874) o gênero *Hyalella* sofreu muitas modificações em sua classificação. Inicialmente incluso em Orchestidae, sofreu alteração quando Stebbing (1900) o realocou em Talitridae, família que posteriormente Bulycheva (1957) elevaria à superfamília Talitroidea. Além disso, Bulycheva (1957) ainda criou mais duas famílias, sendo uma delas Hyalellidae e incluiu o gênero *Hyalella* na mesma. Durante muitos anos utilizou-se esta classificação, porém Serejo (2004) remanejou *Hyalella* para Hyalellinae, em Dogielinotidae. Atualmente utiliza-se a classificação de Lowry & Myers (2013) que retornaram o gênero para Hyalellidae.

Com elevadas taxas de endemismo e diversidade críptica em algumas espécies (Witt *et al.* 2006; 2008), os registros de *Hyalella* vão desde a região central do Canadá até o sul da Patagônia, sendo então restritos às regiões biogeográficas Neártica e Neotropical (Bueno *et al.* 2014). Bousfield (1996) sugeriu desmembrar o gênero em três subgêneros. *Austrohyalella* agruparia as espécies presentes nos Andes e na região sul da América do Sul, *Mesohyalella* reúne as espécies encontradas na região noroeste da América do Sul e *Hyalella*, como subgênero nominal, agregaria as espécies da América Central e do Norte. Em uma

revisão, Serejo (2004) sustentou a subdivisão, mas até o momento nenhum estudo mais aplicado foi realizado para tornar viável ou não o uso dos subgêneros.

No Brasil, o gênero *Hyalella* é o único gênero de Amphipoda dulcícola ocorrendo em ambiente epígeo (ambiente superficial, externo ao subterrâneo) (Trajano & Bichuette 2006; Serejo & Siqueira 2018). Os hyalellídeos são encontrados associados à flora de ambientes aquáticos com fluxo reduzido, habitando nascentes (Bastos-Pereira & Bueno 2013), áreas alagadas, ambientes subterrâneos (Bueno *et al.* 2011; Rodrigues *et al.* 2012; Bastos-Pereira *et al.* 2018), lagos e lagoas, riachos, rios de primeira e segunda ordem (Grosso & Peralta 1999; Bueno *et al.* 2014).

Na última década ocorreu um aumento nas descrições de espécies novas, conforme maior formação de taxonomistas, além do crescimento das expedições de coleta no território brasileiro. De um total de 88 espécies descritas, o Brasil possui 37 (Bastos-Pereira *et al.* 2018; Bueno *et al.* 2019; Drumm & Knight-Gray 2019; Peralta & Isa Miranda 2019; Reis *et al.* 2020; Limberger *et al.* 2021; Penoni *et al.* 2021; Talhaferro *et al.* 2021a) abrangendo cerca de 42% de descrições. Na região Sul do país, a maior diversidade de espécies é documentada para o estado do Rio Grande do Sul com 14 espécies (Streck Marx & Castiglioni 2020; Limberger *et al.* 2021;Talhaferro *et al.* 2021a), seguida pelo estado de Santa Catarina com quatro espécies (Reis *et al.* 2020; Talhaferro *et al.* 2021a) e o estado do Paraná com duas espécies (Bousfield 1996; Cardoso *et al.* 2014).

OBJETIVOS

Objetivo Geral

Descrever espécies do gênero *Hyalella* Smith, 1874 para o estado de Santa Catarina, Brasil.

Objetivos Específicos

- Identificar e descrever novas espécies para o estado de Santa Catarina;
- Ampliar os registros do gênero *Hyalella* para o estado de Santa Catarina.

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ARTIGO

Two new species of *Hyalella* Smith, 1874 (Malacostraca: Amphipoda: Hyalellidae) from the state of Santa Catarina, Brazil

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Two new species of *Hyalella* Smith, 1874 (Malacostraca, Amphipoda, Hyalellidae) from the state of Santa Catarina, Brazil

Abstract

The genus *Hyalella* occurs exclusively in the Americas, with 88 described species. In Brazil, 37 species are registered, and the southern region has the largest number of records. In the present study, two new species of the genus for the state of Santa Catarina are described and a new type of seta is registered. Among the characteristics that define *Hyalella* sp. n. 1 antenna 1 has two plumose setae; antenna 2 with four plumose setae and four pappose setae; the gnathopod with pappose bifurcated setae and comb-scales from the basis to the carpus, in addition to seven pappose setae on the inner margin of the propodus; in gnathopod 2 only the merus and carpus have pappose bifurcate setae and the dactylus has a strongly serrated inner margin in the male; in this species, microtrichs are present in the antennae, maxilliped, gnathopods, pereopods, uropods and telson. *Hyalella* sp. n. 2 is characterized by antenna 1 with a plumose seta; antenna 2 with five pappose setae; gnathopod 1 with pappose bifurcate setae from base to propodus and slightly serrated palm in female; on the coxal plate of the female's gnathopod 2 there are two lateral pappose setae, from the base to the carpus there are pappose bifurcate setae and the palm is slightly serrated in the male; simple setae are present on the peduncle and on the inner ramus of the pleopod; in this species the microtrichs do not occur in uropod 2, in the others they occur similar to *Hyalella* sp. n. 1. In this study, we increased the knowledge about the genus *Hyalella* with the description of two new species. In addition, it describes a new type of seta that has never been described before. We expect that this study will be helpful in future studies with *Hyalella* and with the species described here. In addition to encouraging the conservation of freshwater aquatic environments and their fauna.

Keywords: Crustacea, Freshwater, Peracarid, Southern Brazil

Introduction

Hyalella Smith 1874, is the unique freshwater epigean genus of amphipods in South America (Väinölä *et al.* 2008), occurring from southern Canada to Patagonia (Bueno *et al.* 2014). Species of *Hyalella* are found in association with marginal vegetation, wetlands, lakes, ponds and underground aquatic surroundings (Grosso & Peralta 1999; Rodrigues *et al.* 2012; Cardoso *et al.* 2014; Bastos-Pereira *et al.* 2018).

Currently 88 species are described for the genus *Hyalella* (Streck *et al.* 2017; Bueno *et al.* 2019; Reis *et al.* 2020; Rogers *et al.* 2020; Talhaferro *et al.* 2021a), and Brazil is the richest in number of species with 37 of them occurring in the country (Bastos-Pereira *et al.* 2018; Reis *et al.* 2020; Streck Marx & Castiglioni 2020; Penoni *et al.* 2021; Talhaferro *et al.* 2021a). In Brazil, the highest diversity of species is

concentrated in the south region (states of Paraná, Santa Catarina and Rio Grande do Sul) with 19 species (Cardoso *et al.* 2014; Streck *et al.* 2017; Reis *et al.* 2020; Streck Marx & Castiglioni 2020; Talhaferro *et al.* 2021a).

Nevertheless, the state of Santa Catarina has four registered species, *Hyalella catarinensis* Reis & Bueno, 2020, *Hyalella rioantensis* Penoni & Bueno, 2020, *Hyalella sambaqui* Talhaferro & Bueno 2021 and *Hyalella lagoana* Talhaferro & Bueno 2021 (Reis *et al.* 2020; Talhaferro *et al.* 2021a). This discrepancy in the number of species described is related to the absence of sampling and / or studies in the state of Santa Catarina (Reis *et al.* 2020).

In order to expand the knowledge of distribution of the *Hyalella*, this paper presents the description of two new species for the state of Santa Catarina.

Material and Methods

The material used in this study was obtained from the Coleção de Crustáceos da Universidade Federal de Lavras (CCUFLA), Brazil. The specimens were collected in Ponte Alta River (27°44′4.4″S 49°59′1.0″W), municipality of Bocaina do Sul and in a flooded area, beside road SC135, municipality of Campos Novos (27°19′29″S 51°12′28″W); both in state of Santa Catarina and situated in Uruguay Basin (Figure 1). The capture was realized with a hand net and the animals were preserved in 70% ethanol.

Before the dissection, head measurement was obtained from the insertion of antenna 1 until the beginning of the first pereonite and body measurement was from the head to the distal margin of the last pereonite, not including the telson. All specimens were prepared using Rose Bengal dye for 24 hours to improve color contrast.

The dissection was realized under a stereoscope, slides were fixed with Hoyer's medium and sealed with varnish. The illustrations were made with support of a microscope equipped with a *camera lucida*. The illustrations were drawn with nanquim ink, digitized and complemented in Photoshop CS6 software. The plates were constructed in CorelDRAW X7. Specimen measurements were performed with a millimetric ocular on a stereomicroscope and appendices measurements were performed on ImageJ (Rasband, 2018). The description of cuticular structures followed terminology by Zimmer et al. (2009). All comparisons made in this work are based only on descriptions deposited in the literature. The holotypes will be deposited in Museu de Zoologia da Universidade de São Paulo (MZUSP) and the paratypes will be deposited in Coleção de Crustáceos do Departamento de Zoologia da Universidade Federal do Rio Grande do Sul (UFRGS), and in Coleção de Crustáceos da Universidade Federal de Lavras (CCUFLA).

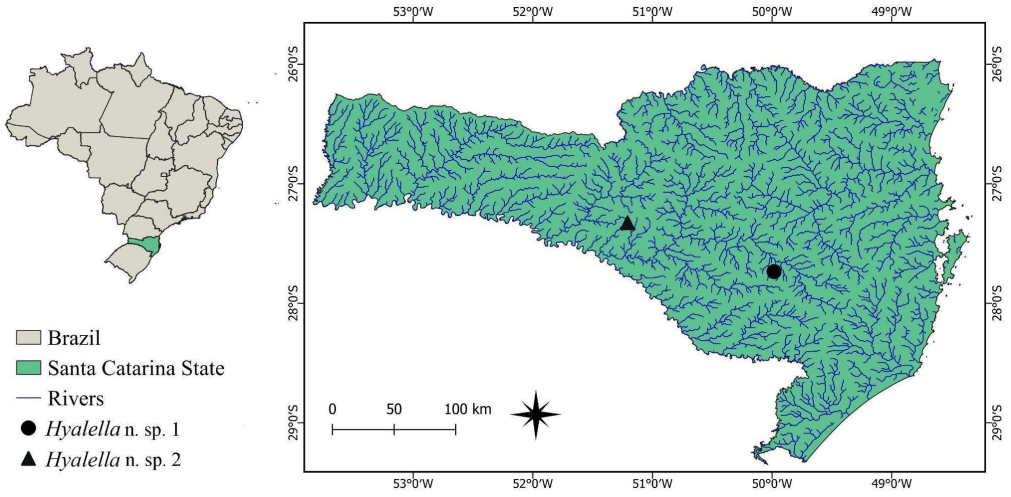

Figure 1. Map showing collection sites in the state of Santa Catarina.

Results

Taxonomy

Order Amphipoda Latreille, 1816

Suborder Senticaudata Lowry & Myers, 2013

Family Hyalellidae Bulycheva, 1957

Genus *Hyalella* S. I. Smith, 1874

Hyalella n. sp. 1

(Figures 2–8)

Type material. Holotype male (will be deposited in MZUSP), body length = 7.30 mm, head length = 0.70 mm, Ponte Alta River, municipality of Bocaina do Sul, Santa Catarina, Brazil, (27°44′4.4″S 49°59′1.0″W). Paratype male, 6.75 mm; paratype female, body length = 6.30 mm, head length = 0.64 mm plus two males and one female (all of them in slides and on CCUFLA 449).

Complementar material: fifty-five whole individuals.

Diagnosis. Antenna 1 with plumose setae. Antenna 2 with plumose and pappose setae. Lower lip and upper lip with several simple setae. Maxilla 2 with lateral simple setae. Maxilliped with 16 papposerrate setae on the inner plate. Gnathopod 1 basis, ischium and carpus with pappose bifurcate setae and comb-scales; inner margin of propodus with 7 pappose setae. Gnathopod 2 merus and carpus with pappose bifurcate setae; dactylus proximal margin strongly serrated. Uropod 3 with two dorsal simple setae. Microtrichs present on antenna 1 and 2, maxilliped, gnathopods 1 and 2, pereopods, uropods and telson.

Description of male (Figure 2). Mean body length: 6.37 ± 1.96 mm (N = 10 from 4.34 to 10.84 mm); mean head length: 0.63 mm ± 0.14 mm (N = 10, from 0.43 to 0.90 mm). Body surface smooth. Head

1.9x smaller than the first two thoracic segments. Eyes rounded and pigmented. Coxae 1–3 subequal in size, slightly overlapping, coxae 3 and 4 longer than 1 and 2 (Figures 3A, D and 4A). Coxa 3 wider than 4 (Figure 4A, B). Coxa 4 longer than wide, excavated posteriorly (Figure 4B). Coxa 5 posterior lobe longer than anterior lobe (Figure 4C). Coxa 6 wider than long (Figure 4D). Epimeral plates accuminated.

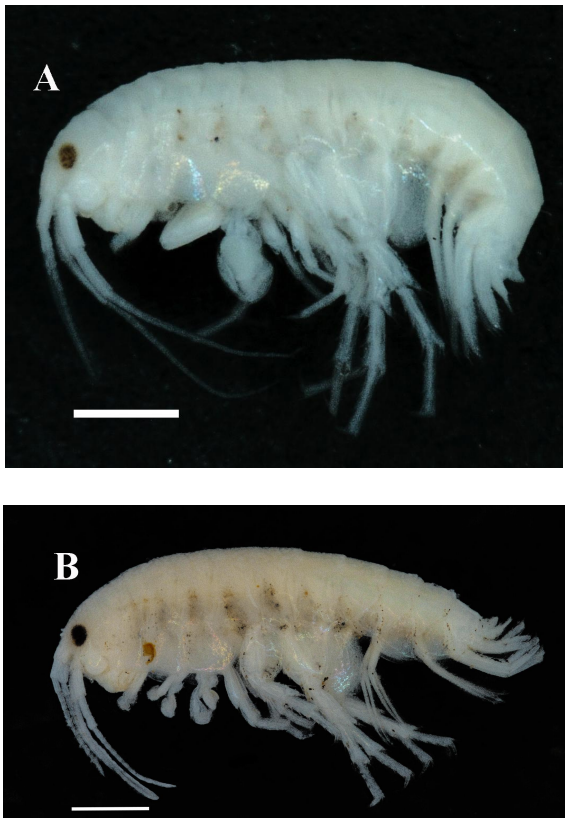

Figure 2. *Hyalella* n. sp. 1, municipality of Bocaina do Sul, state of Santa Catarina, Brazil (27°44′4.4″S 49°59′1.0″W). (A) Holotype, male, 7.35 mm. (B) Paratype, female, 6.38 mm. Scale bars: 1 mm. Photograph: G. O. Reis.

Antenna 1 (Figure 3A) about 2.8x smaller than body length, 1.3x smaller than antenna 2, flagellum with 10–11 articles, 1.5x longer than peduncle;article 1 with three lateral plumose setae and two inner simple setae with accessory seta; article 2 with one lateral plumose seta; aesthetascs (Figure 3B) occurring on flagellum from article 3 distally; microtrichs present from article 2 to 9.

Antenna 2 (Figure 3C) 2.2x smaller than body length; peduncle slender, 2.2x longer than head; flagellum with 17–19 articles, 1x longer than peduncle; article 3 with four apical pappose setae; article 4 with three lateral plumose setae, two inner pappose setae and two apical pappose setae; article 5 with one lateral plumose seta; microtrichs present from article 3 to 20, absent on articles 7 and 8.

Mandible incisor toothed; left mandible (Figure 3D) lacinia mobilis with five teeth, setal row with four papposerrate and one pappose setae, with setules, molar process with accessory seta; right mandible (Figure 3E) with four papposerrate setae and setules; molar process broad and oval, without accessory seta.

Upper lip (Figure 3F) distal margin rounded; outer margin covered by simple setae and inner margin

with setules on ventral and dorsal faces. Lower lip (Figure 3G) outer lobes rounded and distally notched, with several simple setae and setules on dorsal and ventral faces.

Maxilla 1 (Figure 3H) inner plate slender, 1.9x shorter than outer plate, with two apical papposerrate setae and several setules dorsally. Outer plate with nine serrate setae and several setules dorsally. Palp short, uniarticulate, 1.7x wider than long, reaching less than half the distance between the base of the palp and base of setae on the outer plate, with apical setules.

Maxilla 2 (Figure 3I) inner plate 1.3x shorter than outer plate, with one papposerrate seta, seven pappose setae, several lateral simple setae and dorsally setules; outer plate with several distal and lateral simple setae.

Maxilliped (Figure 3J) inner plate 2.7x longer than wide, with three cuspidate distal setae and 16 papposerrate setae; outer plate 1.1x longer than inner plate, with three papposerrate and simple setae; palp 2.3x longer than inner and 2x longer than outer plate, with four articles; article 1 1.5x longer than wide, outer margin with simple setae; article 2 1.4x longer than wide, inner margin with several long simple setae; article 3 (Figure 3K) 1.5x longer than wide, inner margin with seven pappose and several long simple setae, outer margin with long simple setae; article 4 1.9x shorter than third article, 2.8x longer than wide, with distal setae simple and 1.4x longer than nail, with comb-scales, and distal nail present.

Gnathopod 1 (Figure 4A) subchelate; coxal plate 1.7x wider than long, with simple setae on the margin; basis with one inner pappose seta; basis, merus and ischium with disto-posterior pappose bifurcate (Figure 4F) setae and posterior comb-scales; carpus (Figure 4B) 1.5x longer than wide, 1.3x longer than propodus, with six pappose bifurcate setae on inner margin, lateral distal lobe produced with polygonal pattern, several pappose bifurcate setae and comb-scales on posterior lobe; propodus (Figure 4C) 1.4x longer than wide, hammer-shaped, with several simple long setae, comb-scales on disto-anterior margin, inner margin with four pappose setae, with few simple, comb-scales on the disto-posterior margin; palm slope transverse, with many simple setae, margin slightly convex, posterior distal corner with two strong cuspidate setae with accessory seta; dactylus claw-like, comb-scales present on distal margin, with one plumose seta dorsally. Microtrichs present on coxal plate and propodus.

Gnathopod 2 (Figure 4D) subchelate; coxal plate 1.8x wider than long, with several simple setae on the margin; basis with several simple setae with accessory seta, one inner pappose bifurcate seta and comb-scales on disto-posterior margin; ischium with several simple setae with accessory seta and comb-scales on disto-posterior margin; merus with five pappose bifurcate setae on disto-posterior margin and comb-scales; carpus (Figure 4E) 1.9x wider than long, posterior lobe slim produced between merus and propodus, forming scoop-like structure, posterior margin with polygonal pattern, several pappose bifurcate setae and comb-scales, two pappose bifurcate setae on inner margin and two on disto-anterior, anterior margin with comb-scales; propodus (Figure 4F) ovate, 1.2x longer than wide, with two anterior simple setae, comb-scales present, palm 1x longer than posterior margin of propodus, slope oblique, margin with one row of several cuspidate setae with accessory seta and simple setae, posterior distal corner with one long and strong cuspidate seta and with a cup for dactylus; dactylus claw-like, congruent with palm, proximal margin

strongly irregular, plumose seta dorsally absent. Microtrichs present on coxal plate and dactylus.

Pereopods 3 to 7 (Figure 5A–E) simple. Pereopods 3 and 4 basis with pappose setae and simple setae with accessory seta; merus and carpus posterior margin with several cuspidate with accessory seta and simple setae with accessory seta; propodus posterior margin with cuspidate and simple setae; dactylus 2.3x and 2x shorter than propodus, respectively, with a plumose seta dorsally and one strong cuspidate seta on proximal margin. Pereopods 5 to 7 merus, carpus and propodus posterior margin with several cuspidate and simple setae, some with accessory seta, dactylus 2.1x, 2.5x and 2.5x shorter than propodus, respectively, with one plumose seta dorsally and one strong cuspidate seta on proximal margin. Pereopods 6 and 7 basis with pappose setae on posterior margin and on Pereopod 6 simple setae on posterior margin with accessory seta. Pereopod 3 and 4 similar in size; pereopod 5 smaller than others; pereopod 6 1x subequal in length to pereopod 7. Microtrichs present on coxal plates of pereopods 3 to 7; on basis of pereopods 5 to 7; on ischium of pereopods 3, 4 and 7; on merus and propodus of pereopods 4, 6 and 7; on carpus of pereopods 3 to 7; on dactylus of pereopods 6 and 7.

Pleopods (Figure 6A) peduncle 2.5x longer than wide, 1.7x shorter than the mean size of rami, with two coupling spines; both rami with several plumose setae.

Uropod 1 (Figure 6B) 1.7x longer than uropod 2; peduncle 1.2x longer than outer ramus and 1.2x longer than inner ramus, with six cuspidate setae some with accessory seta; inner ramus slightly longer than outer ramus, 5.9x longer than wide, with three dorsal cuspidate setae on margin with accessory seta and six cuspidate setae apically, some with accessory seta, without curved seta; outer ramus 5.9x longer than wide, with three dorsal cuspidate setae on margin, some with accessory seta and four cuspidate setae apically. Microtrichs present on peduncle, inner and outer ramus.

Uropod 2 (Figure 6C) 1.7x smaller than uropod 1, peduncle 1.1x shorter than outer ramus and inner ramus, 2.2x wider than outer ramus and 2.1x than inner ramus, with four cuspidate setae with accessory seta; inner ramus with two dorsal cuspidate setae with accessory seta and seven apical cuspidate setae some with accessory seta; outer ramus with three dorsal cuspidate setae with accessory seta and four apical cuspidate setae, only one with accessory seta. Microtrichs present on peduncle, inner and outer ramus.

Uropod 3 (Figure 6D) 1.6x shorter than peduncle of uropod 1 and 1.2x than peduncle of uropod 2; peduncle 1.6x longer than wide, with five distal cuspidate setae some with accessory seta, two dorsal simple setae; inner ramus absent; outer ramus uniarticulate, 1x longer than peduncle, 3.7x longer than wide, with six simple and one cuspidate seta apically. Microtrichs present on peduncle.

Telson (Figure 6E and F) entire, subequal in length and wide, apically rounded, with two apical cuspidate setae, with two simple setae laterally, microtrichs present. Variations: three apical cuspidate setae with accessory seta, three lateral pappose setae.

Coxal gills sac-like present on pereonites 2 to 6. Sternal gills tubular present on pereonites 2 to 7.

Female (Figure 7). Mean body length: 5.88 ± 1.08 mm (*N* = 10, from 4.20 to 7.80 mm); mean head length: 0.59 ± 0.09 mm (*N* = 10, from 0.44 to 0.74 mm).

Gnathopod 1 (Figure 8A) similar to male Gnathopod 1; basis with inner pappose setae; basis, ischium and merus with distal pappose bifurcate setae; ischium and merus with simple setae with accessory seta, comb-scales present; carpus 1.5x longer than wide, posterior lobe produced and forming scoop-like structure, pectinate margin with comb-scales, several pappose bifurcate setae and polygonal pattern, inner margin with six pappose bifurcate setae; propodus 1.5x longer than wide, hammer-shaped, with comb-scales, anterior margin with one pappose and two simple setae; palm 2x shorter than posterior margin of propodus, without comb-scales, inner margin with 7 pappose bifurcate setae, palm slope transverse; dactylus claw-like, with comb-scales, plumose setae dorsally. Microtrichs present on coxal plate.

Gnathopod 2 (Figure 8B) similar in size and shape to Gnathopod 1; basis, ischium, merus and carpus with few pappose bifurcate setae some with accessory seta, comb-scales present on ischium; carpus with pappose bifurcate setae on disto-anterior margin, posterior lobe produced and forming scoop-like structure, pectinate margin with comb-scales, pappose bifurcate seta and polygonal pattern; propodus 1.9x longer than wide, with reduced quantity of comb-scales on posterior margin, inner margin with three pappose setae, palm transverse with several long simple setae; dactylus with comb-scales and plumose seta on distal margin. Microtrichs present on coxal plate.

Telson (Figure 8C and D) 1x longer than wide, similar in shape to male, with three apical simple setae and two lateral simple setae on both sides. Variations: four apical cuspidate setae, with or without accessory seta, two and three dorsal pappose setae, microtrichs present.

Taxonomical remarks. All similarities/ differences between the new species and other epigean species, beyond the localities of species, can be checked on Table 1. *Hyalella* n. sp. 1 shares the absence of curved seta in the inner ramus of uropod 1 with *H. bala* Penoni & Bueno, 2021, *H. dielaii* Pereira, 2004, *H. gracilicornis* (Faxon, 1876), *H. longipropodus* Limberger, Graichen & Castiglioni, 2021, *H. longistila* (Faxon, 1876), *H. meinerti* Stebbing, 1899, *H. montana* Rodrigues, Senna, Quadra & Bueno, 2017, *H. minensis* Bastos-Pereira & Bueno, 2013, *H. pseudoazteca* González & Watling, 2003, *H. virgineae* Lares, Penoni & Bueno, 2021 and *H. warmingi* Stebbing, 1899. In this group, the new species differs from all of them by the presence of pappose bifurcate setae on gnathopods, a new type that hadn't yet been described, by the presence of plumose setae on antenna 1 and the pappose and plumose setae on antenna 2 (absent in the other species), the simple setae present on upper and lower lip (absent in the other species), the dactylus with proximal margin strongly irregular (regular in the other species), the microtrichs present on antennae 1 and 2, maxilliped, gnathopods 1 and 2, pereopods, uropods and telson.

Habitat. Epigean.

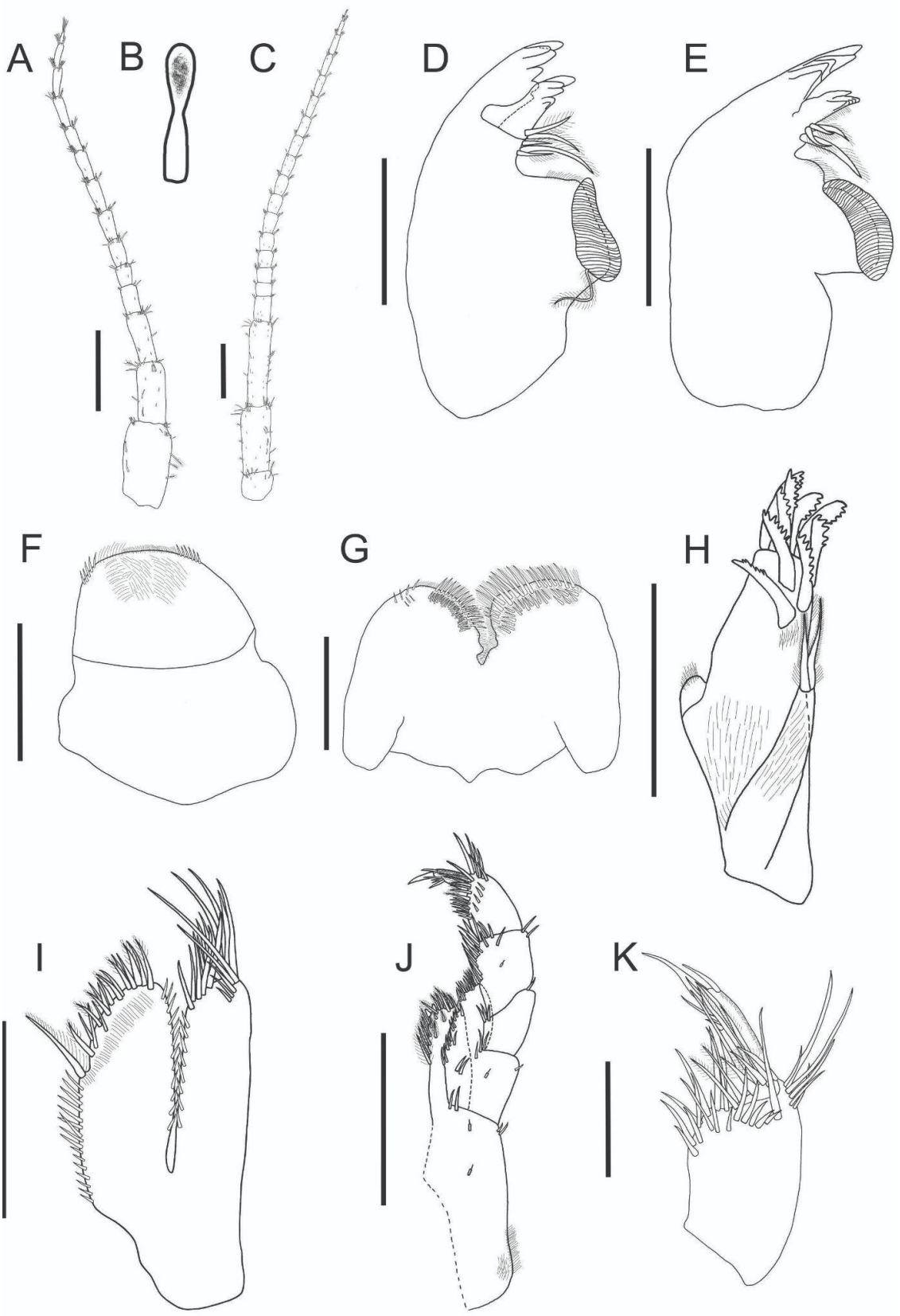

Figure 3. *Hyalella* n. sp. 1, municipality of Bocaina do Sul, state of Santa Catarina (27°44′4.4″S 49°59′1.0″W). Paratype male, 6.75 mm, CCUFLA 449. (A) Antenna 1. (B) Schematic illustration of aesthetascs. (C) Antenna 2. (D) Left mandible. (E) Right mandible. (F) Lower lip. (G) Upper lip. (H) Maxilla 1. (I) Maxilla 2. (J) Maxilliped. (K) Detail of article 4, article 3 and nail of maxilliped. Scale bars, A, C and J - 0.4 mm; D to I - 0.2 mm; K - 0.1 mm.

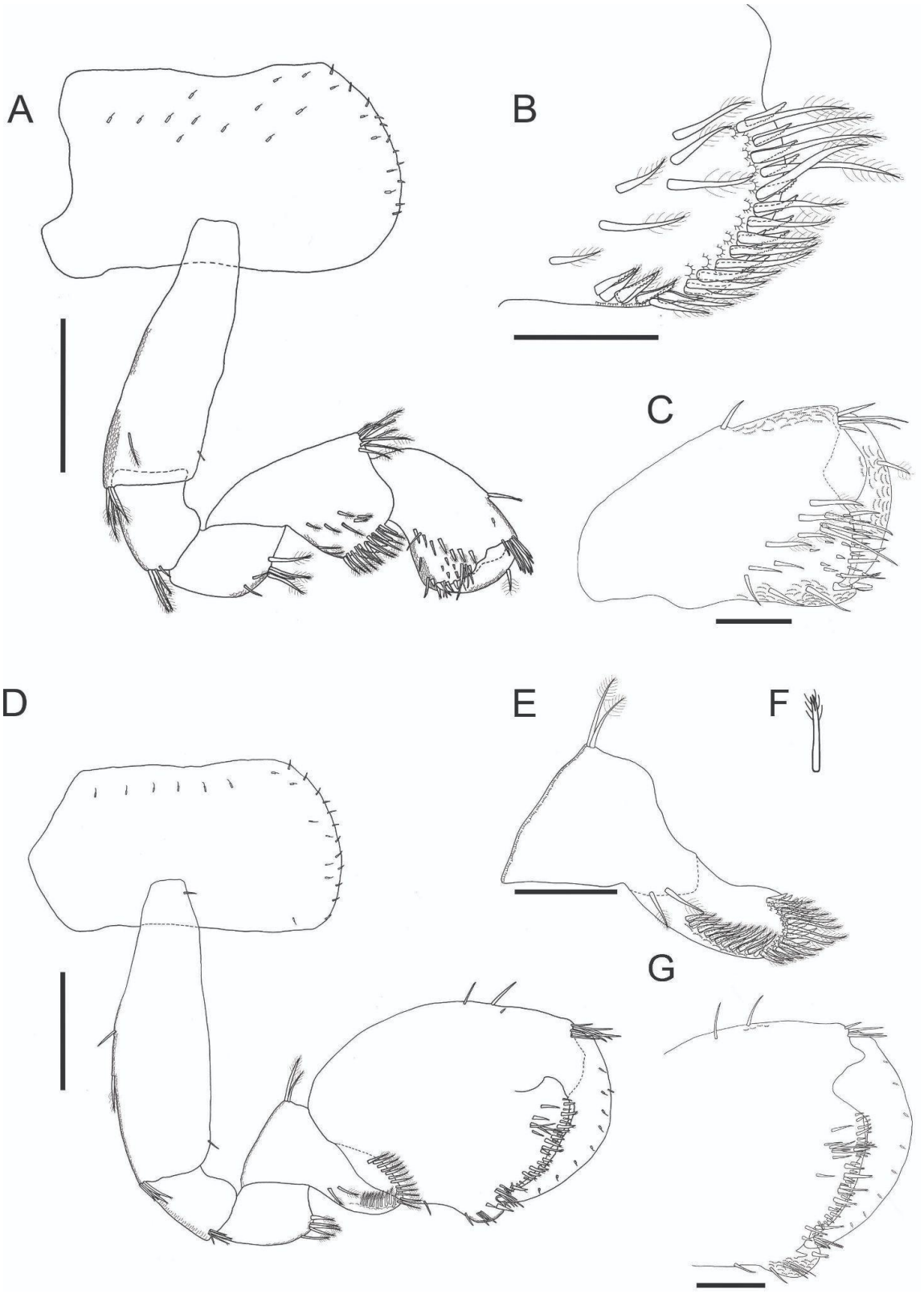

Figure 4. *Hyalella* n. sp. 1, municipality of Bocaina do Sul, state of Santa Catarina (27°44′4.4″S 49°59′1.0″W). Paratype male, 6.75 mm, CCUFLA 449. (A) Gnathopod 1. (B) Detail of carpus. (C) Detail of propodus and dactylus. (D) Gnathopod 2. (E) Detail of carpus. (F) Schematic illustration of pappose bifurcate seta. (G) Detail of propodus and dactylus. Scale bars, A and D - 0.4mm; B and C - 0.1 mm; E and G - 0.2 mm.

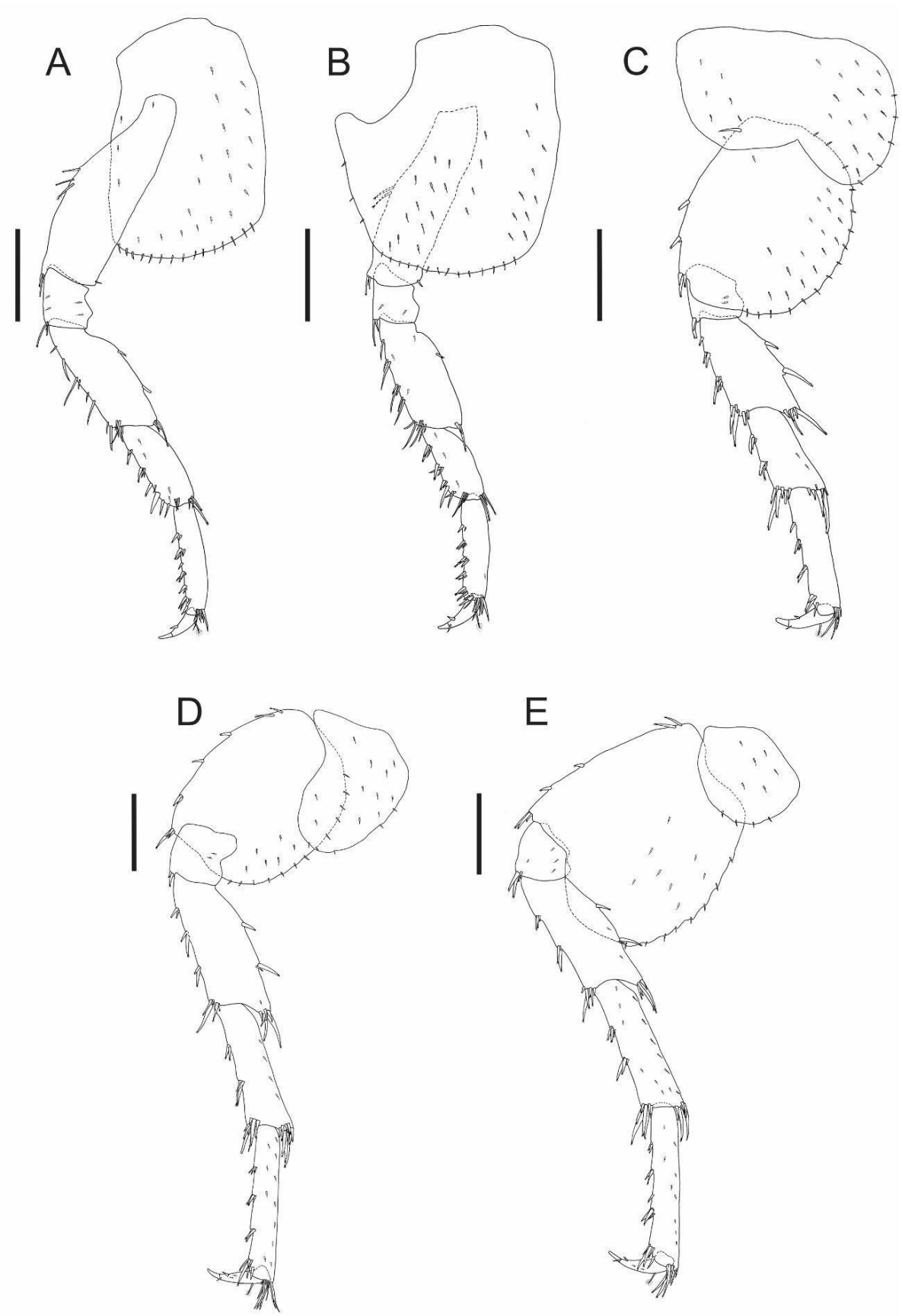

Figure 5. *Hyalella* n. sp. 1, municipality of Bocaina do Sul, state of Santa Catarina (27°44′4.4″S 49°59′1.0″W). Paratype male, 6.75 mm, CCUFLA 449. (A) Pereopod 3. (B) Pereopod 4. (C) Pereopod 5. (D) Pereopod 6. (E) Pereopod 7. Scale bars, 0.4mm.

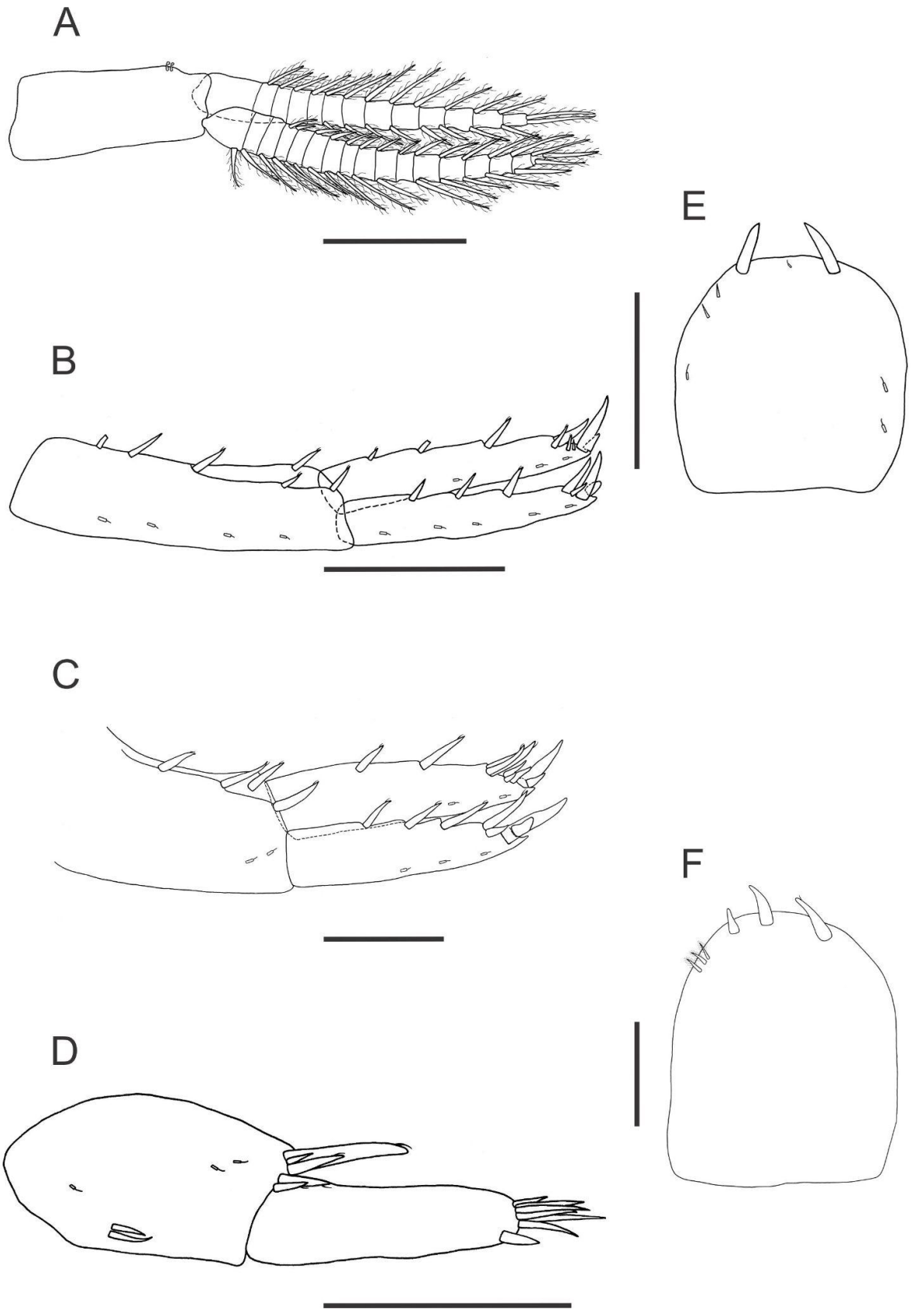

Figure 6. *Hyalella* n. sp. 1, municipality of Bocaina do Sul, state of Santa Catarina (27°44′4.4″S 49°59′1.0″W). Paratype male, 6.75 mm, CCUFLA 449. (A) Pleopod. (B) Uropod 1. (C) Uropod 2. (D) Uropod 3. (E) and (F), Telson. Scale bars, A and B - 0.4 mm; C to F - 0.2 mm.

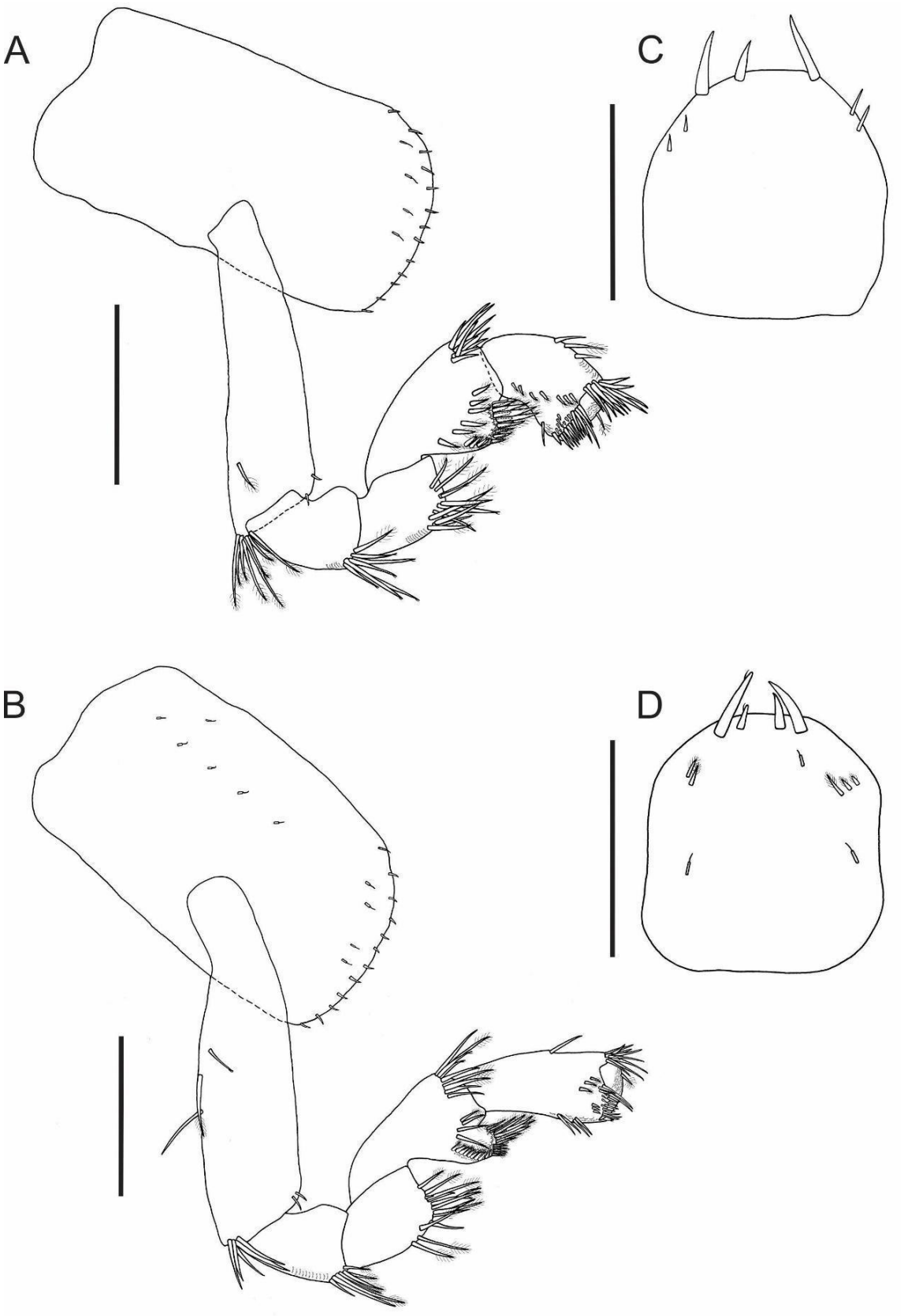

Figure 8. *Hyalella* n. sp. 1, municipality of Bocaina do Sul, state of Santa Catarina (27°44′4.4″S 49°59′1.0″W). Paratype, female, 7.07 mm, CCUFLA 449. (A) Gnathopod. (B) Gnathopod 2. (C) and (D), Telson. Scale bars, A and B - 0,4 mm; C and D - 0.2 mm.

Table 1. All similarities and differences between the new species and other epigean species described from Brazil.

Species	Type locality	Occurance/ Distribution	Body surface	Epimeral plates	Pappose bifurcade seta	Setae on upper lip	Setae on lower lip	Setae on inner plate of Maxilla 1	Setae on outer plate of Maxilla 1	Setae on inner plate of Maxilla 2	Setae on outer plate of Maxilla 2	Papposerrate setae on Maxilliped	Comb-scales on Maxilliped	Pappose setae on G1	Comb-scales present on G1	Polygonal pattern on G1	Palm or dactylus with margin serrated on G2
H. bala Penoni & Bueno, 2021	Córrego Pau de Bala, São Luiz do Paraitinga municipality, São Paulo state, Brazil	-	Smooth	Epimeron 2 postero-distal margin acute, epimeron 3 postero-distal margin subacute	Absent	Distal border covered by few setules on ventral, dorsal faces	Setules on dorsal, ventral faces	Two strong pappose apical setae	8 serrate and few setules	Two strong papposerrate seta on inner margin and some setules internally	Only papposerrate distal setae	Absent	Absent	On distal margin of ischium and merus, four on inner margin and on posterior lobe of propodus	Absent	Absent	No information
H. bouariensis Bond-Buckup, Araujo & Santos, 2008	Salto municipality, Buenos Aires, Argentina	ARGENTINA: Pergamino river (35°56'S 60°28'W), Cañada Honda, San Antonio de areco (34°04'S 59°30'W), Arroyo Manantiales (33°42'S 60° 20'W)	Smooth	Not accuminated	Absent	Distal border covered by short setules on dorsal and ventral faces	With setules on dorsal and ventral faces	Long and stout pappose setae	9 serrate	Two pappose, several simple and serrate setae	Two rows of simple setae	Absent	Article 4 on palp	No information, pectinate border on carpus (illustration)	Merus, ischium, basis (polygonal pattern) and dactylus	Basis, ischium and merus with comb scales dorsally forming a poligonal pattern of setae	No information
H. brasiliensis Bousfield, 1996	Rio de Patos, Municipality of Prudentópolis, Paraná state, Brazil	-	Smooth	Pleonite 2 and 3 accuminate	Absent	No information	No information	No information	No information	One strong and one shorter plumose	No information	No information	No information	16 stout marginal pectinate setae on lobe and median face with distal oblique row of 5-6 short pectinate spines on carpus	No information	No information	No information
H. carstica Bastos-Pereira & Bueno, 2012	High São Francisco River, municipality of Arcos, Minas Gerais state	-	Smooth	Not accuminated	Absent	No information	No information	Two strong pappose apical and several simple on inner margin	Less than 9 serrate	Several pappose on upper and inner margin	Abundant setules	No information	No information	Five on inner face of propodus	On disto-posterior and sito-anterior borders of propodus and on disto-posterior margin of dactylus	No information	No information
H. castroi González, Bond-Buckup & Araujo, 2006	Vale das trutas, municipality of São José dos Ausentes, Rio Grande do Sul state	-	Smooth	Not accuminated	Absent	No information	No information	Two strong pappose apical	9 stout and serrate	One strong pappose and abundant setules	Abundant setules	Absent	Absent	Carpus and propodus	Propodus and dactylus	No information	No information
H.caturinensis Reis & Bueno, 2020	Alagado do Ribeirão Autônuo, municipality of Palmeira, Santa Catarina state	-	Smooth	Not accuminated	Absent	Setules on upper and lower, but simple on upper	Outer lobes rounded with apical setules	Two long papposerrate	7 to 9 serrate	One papposerrate, ten pappose, several simple ans setules	Several simple and setules	Absent	Absent	Carpus and inner margin of propodus	Carpus, propodus and dactylus	No information	No information
H. curvispina Shoemaker, 1942	Montevideo, Uruguai	ARGENTINA: Falkland Islands (51°49'S 59°22'W), Argentina lake (50°15'S 72° 33'W), Puerto Bandera (50° 18'S 72°47'W); laguna larga, Futalaufquen (42° 50'S 71°41'W); Lacar lake (40°10'S 71°22'W); Horqueta stream, city of Arrefices, Buenos Aires province (34°04'S 60° 06'W); Lujan river (34°28'S 59°00'W); Samborombón river, Brandsen (35°07'S 60°30'W), Samborombón river, Chascomús (35°34'S 58°02'W), Samborombón Bay (35°50'S 57°23'W). CHILE: Punta arenas (53° 11'S 70°56'W). PERU: Pampa of Cangallo (13°25'S 74°20'W).	Has no dorsal teeth	No information	Absent	No information	No information	Two apical plumose	9 serrate and pectinate spine-teeth	Two plumose on upper inner margin	No information	No information	No information	No information	An armament of the minute pectinate scales on hind margin of palm, the front margin also bears an armament of pectinate scales distally, a few pectinate scales on outer margin of propodus	No information	No information
H. dielaii Pereira, 2004	Municipality of Alto da Serra, São Paulo state	Lago Titicaca (Northern Andes)	Smooth	7 and 1-3 accuminated	Absent	Setose distal surface	Inner and apical margins with setules	No information	No information	No information	No information	No information	No information	Two long bipectinate on ischium	No information	No information	No information
H. gauchensis Streck &Castiglioni, 2017	Sítio Taqui, municipality of Palmeira das Missões, artificial pond (Várzea river basin), 539 meters of altitude Rio Grande do Sul state	-	Smooth	Not accuminated	Absent	Setules	Several setules on dorsal and ventral faces	Two long apical papposerrate and some setules on margin	7 serrate	Several simple, 10 serrulate and two papposerrate apical, several setules	Several simple and setules	Absent	Article 4 on palp	Absent	Basis, ischium and merus; one row of denticles in comb-scales on carpus; posterior and anterior margin on propodus with denticles in comb-scales; dactylus with denticles in comb-scales	On posterior lobe of carpus	No information
H. georginae Streck & Castiglioni, 2017	Sítio Taqui, municipality of Palmeira das Missões, Rio Grande do Sul state	-	Smooth	Not accuminated	Absent	Distal border covered by several setules on dorsal and ventral faces	Several setules on dorsal and ventral faces	Apex with two papposerrate and setules on the inner margin	9 long serrate	10 serrulate and several simple apical, two robust papposerrate apical and several setules	Several apical simple and several setules	Absent	Absent	Absent	Basis, ischium and merus posterodistally, on posterior and anterior distal margins of propodus with denticles in comb-scales and on dactylus with denticles in comb scales	No information	No information
H. gracilicornis (Faxou, 1876)	Municipality of Campos, state of Rio de Janeiro, Brazil	BRAZIL: Represa Belvedere, Campus UFV, municipality of Viçosa, Minas Gerais state (18°55'S 48°01'W)	Smooth	1 - 3 accuminated	Absent	No information	No information	Two strong and pappose apical	9 stout and serrate	One strong pappose seta on inner margin and scarce setules	Scarce setules	Absent	Absent	Three on inner face of posterior lobe and several on border pectinate of carpus, four on inner face of propodus	Setose scales on disto-posterior and disto-anterior border of propodus	No information	Palm with margin irregular

H. kaingang Armijo & Cardoso, 2013	São Francisco de Paula municipality, Rio Grande do Sul state, Mampituba basin, Guarapá stream	-	Smooth	Flanges on pleonites 1 and 2	Absent	Distal margin covered by short setules	Setules on dorsal and ventral faces	Two papposerrate apical and seyules on margin	8-9 serrate, basis with setules	Covered by setules, with two papposerrate, one of them smaller, 12 serrulate and several simple	One apical serrate and abundant simple, covered by setules	Absent	Article 4 on palp	Absent	Denticles in comb-scales posteromarginally on basis, ischium and merus	Denticles in polygonal pattern on posterior margin of propodus	No information
H. lagoana Tallaferro & Bueno, 2021	Osório municipality, Rio Grande do Sul state, Brazil, sampling site P3	Garopaba municipality, Santa Catarina state, Brazil, smapling site P8 (28° 03' 96.12'' S, 48° 61' 31.21'' W)	Smooth	Not accuminated	Absent	Simple on the borders and covered by several setules	Simple and several setules on the inner and ventral margins	Margins covered by setules and apex with two papposerrate setae of equal size	9 serrate apically	Apex covered with serrate setae and few simple setae, inner margin with two papposerrate setae, inner seta short and slender, outer seta long and robust	Apex covered by long serrate setae and a few smaller simple setae	Absent	No information	Absent	On posterior margin of ischium, on disto-anterior and disto-posterior of propodus, covering dactylus and on outer margin	No information	No information
H. longipropodus Limberger, Graichen & Castiglioni, 2021	Municipality of Palmeira das Missões, locality of Distrito de Santa Rosa, Capão Alto, state of Rio Grande do Sul, Brazil	-	Smooth	Not accuminate	Absent	Distally covered with several short setules on ventral and dorsal faces	Several small setules on dorsal and ventral faces	Two papposerrate apical and several simple setae on the margin	9 serrate setae	Inner margin with two papposerrate setae, being one of them stronger and longer, some serrulate and several simple apical setae	Abundant long simple apical seta	No information	Absent	Posterior lobe of carpus with border pectinate	Two rows of denticles as comb-scales on posterior lobe of carpus, denticles as comb scales on distoposterior margin of propodus, denticles as comb scales on dactylus	No information	Palm with irregular margin
H. longistila (Faxon, 1876)	Municipality of Campos, Rio de Janeiro state, Brazil	BRAZIL: Municipality of Ijuci, Minas Gerais state (21°10'24"S 44°56'24.2" W); Lagoa Feia, Rio de Janeiro state (21°05'53.8"S 41°20'22.4"W)	Smooth	1 - 3 accuminated	Absent	No information	No information	Two strong and pappose apical setae	9 stout and serrate setae	One strong pappose on inner margin and scarce setules	Scarce setules	Absent	No information	One to three on medial surface of posterior lobe and several on border pectinate of carpus, five on medial surface of propodus, five pappose on inner face of propodus	Absent	No information	Palmar margin irregular
H. meinerti Stebbing, 1899	Laguna de Espino, Venezuela	BRAZIL: São Paulo (23° 20'S 46°22'W). COLOMBIA: Rio Meléndez (08°16'N 73° 36'W); Rio Cali (07°10'N 73°28'W); Rio Piendamo (03° 00'N 76°00'W); Laguna de San rafael (02° 50'N 76°15'W). PERU: Apurimac river, NE Ayacucho (15°00'S 72° 00'W). ECUADOR: Camar province (03°20'S 46°22'W) Lago Titicaca (Northern Andes), SP (González & Watling 2003b)	Smooth	1 - 3 accuminated	Absent	No information	No information	Two strong and pappose apical	9 stout and serrate	One strong pappose seta on inner margin and setules	Few setules	Absent	Absent	Three on inner face on posterior lobe and border pectinate with several on carpus, four papppose on inner face of propodus	Setose scales on disto-posterior and disto-anterior border of propodus	No information	Palm margin irregular
H. montana Rodrigues, Senna, Quadra & Bueno, 2017	Itatiaia National Park, municipality of Itamonte, Minas Gerais state	-	Smooth	Slightly accuminated	Absent	Distal border covered by setules on ventral and dorsal faces	Setules on ventral and dorsal faces	Two long papposerrate apical presenting long setules, with many setae on inner margin	8 serrate	Only one long and nine short papposerrate apical seta, several simple apical, covered by several setules	Abundant long simple and covered by several setules	No information	No information	No information	Absent	On border of lobe on carpus	No information
H. montenegrinae Boué-Buckup & Araujo, 1998	Municipality of São José dos Ausentes, Rio Grande do Sul state, Brazil	Pampas	Smooth	No information	Absent	Covered with setae on distal margin	Thin setae on inner margins and apical lobe	Two long plumose setae and several short simple setae on external margin	9 pectinate setae	Bifid and pappose setae on distal margin, two sub-apical plumose, lateral margins with simple	Several apical long simple setae and short thins simple on lateral margin	No information	No information	Bifurcate on basis, merus and ischium, two robust bifurcate on distal inner margin and bifurcate on inner margin of propodus	On antero-ventral margin of propodus, on apice of dactylus	No information	Palm irregular
H. minensis Bastos-Pereira & Bueno, 2011	Lavras, MG	-	Smooth	Not accuminated	Absent	Distal margin covered by short setules	No information	Two apical papposerrate	Less than 7 serrate	Six pappose on inner margin and abundant setuloes	Abundant setules	No information	No information	Basis and merus with distal pappose with an accessory seta, aborder pectinate on carpus with, seven on inner face of carpus, five on inner face of propodus	No information	No information	Palm with irregular edge
H. minuana Tallaferro & Bueno, 2021	São José do Norte municipality, Rio Grande do Sul state, Brazil (samplin P1)	São José do Norte municipality, Rio Grande do Sul state, Brazil, sampling site P2 (31° 51' 10.17'' S, 51° 26' 73.47'' W).	Smooth	Not accuminated	Absent	Rounded borders with simple and setules, ventral margin with many setules	Inner and distal margins with simple and setules	Inner and outer margin covered by setules	9 serrate apically	Simple and serrate on apex, inner margin with two papposerrate	Long simple and serrate on apex	Absent	No information	Absent	Disto-anterior and disto-posterior border on propodus, dactylus	No information	No information
H. palmeirensis Streck-Marx & Castiglioni, 2020	Palmeira das Missões, Rio Grande do Sul state	-	Smooth	No information	Absent	Setules	Outer lobes with several setules on dorsal and ventral faces	Two long apical pappose and some setules in the inner margin	9 serrate	One long and strong papposerrate, several simples and serrate	One row of simple	Absent	Article 4 on palp	Absent	Posterior distal margins of propodus and denticles in comb scales on dactylus	No information	Palm smooth
H. pampeana Cavalieri, 1968	Arroyo Vitel, Chascomús lagoon, Buenos Aires	ARGENTINA: Laguna de Cardiel	Smooth	No information	Absent	Several setae	No information	Two robust bipectinate setae	9	Two rows of bipectinate setae	Two rows of robust setae	No information	No information	Bipetinate on inner face of carpus and on propodus	No information	No information	Palm of propodus
H. pernix (Moreira, 1903)	Lagoa Esgotada, municipality of Itatiaia, Rio de Janeiro State, Brazil	Equador, Peru, Uruguai, Chile, Argentina e Brasil (Rio Grande do Sul, Rio de Janeiro, Goiás e Paraná Pampas	Smooth	Pleonites 2 and 3 accuminated	Absent	Setae on distal border	Setae inclined to the center	Two long plumose setae	9 pectinate	Several simple setae, bipectinate setae, two plumose setae on inner superior margin and small setae in both margins	Several apical simple setae, long, curved and lateral small setae	Absent	Absent	Oblique row of six plumose bifurcated setae near palm, bipectinated setae at distal end of propod, margin of posterior lobe of carpus pectinate	Several pectinate setae near the distal end of posterior margin of merus, on posterior lobe of carpus, on inner face of propodus, in the upper third near the distal end of the inner side numerous pectinate setae, on dactylus	No information	Inner margin of dactylus
H. pleoacuta González, Boud-Buckup & Araujo, 2006	Municipality of São José dos Ausentes, Rio das Antas, hydrographic basin, Vale das Tintas locality, Rio Grande do Sul state	-	Pereiou segmenti 7 with dorsal flanges, pleonite 1,2 and 3 with dorsal flanges	1 to 3 accuminate	Absent	No information	No information	Two strong and pappose apical setae	9 stout and serrate setae	Two adjacent strong pappose setae on inner margin and abundant setules	Abundant setules	Absent	Absent	Inner face and border pectinate on carpus,inner face on propodus	Disto-posterior and disto-anterior border, dactylus	Border pectinate	No information
H. pseudoozteca González & Watling, 2003	Reserva Ecológica de Taim, Rio Grande do Sul state	Pampas	Flanges on peraeonite 7 and pleonites 1 and 2	1-3 accuminated	Absent	No information	No information	Two strong and pappose apical setae	9 stout and serrate setae	One strong pappose and scarce setules	One strong pappose and scar setules	Absent	Absent	Carpus and propodus	Propodus	Border pectinate	No information
H. rionantensis Peroni & Bueno, 2020	Private lake in road SC 135, municipality of Rio das Antas, Santa Catarina state	-	Smooth	Accuminated	Absent	Distal border covered by setules on ventral and dorsal faces	Setules on dorsal and ventral faces	Two apical papposerrate	9 serrate	23 papposerrate, few simple and setules	Pappose, several simple and setules	Absent	Article 4 on palp	Basis, ischium, merus, carpus and propodus	Basis, ischium, merus, carpus, propodus and dactylus	No information	No information

H. sambaqui Talhaferro & Bueno, 2021	Passo de Torres municipality, Santa Catarina state, Brazil, sampling site P4	Balneário da Gaivota municipality, Santa Catarina state, Brazil, sampling site P5 (29° 13' 02.58" S, 49° 62' 02.09" W), Balneário Arroio do Silva municipality, Santa Catarina state, Brazil, sampling site P6 (28° 98' 22.17" S, 49° 42' 57.15" W), Jaguaruna municipality, Santa Catarina state, Brazil, sampling site P7 (28° 62' 78.68" S, 48° 90' 82.36" W)	Smooth	Slightly accuminated	Absent	Distal borders covered by setules and few smaller simple setae	Many setules on ventral face and inner borders	Two apical pappose with many setules along on the margins	9 distal serrate	One robust and one shorter papposerrate setae proximally on inner margin	Serveral serrate and simple setae on the apex	One robust and one shorter proximally on inner margin of inner plate, on apex of article 3	No information	Absent	On disto-posterior and disto-posterior border of propodus, covered dactylus	No information	No information
H. virgineae Lares, Petroni & Bueno, 2021	Trilha do Poço do Pito marsh, Parque Estadual da Serra do Mar, Núcleo Santa Virgínia, São Luiz do Paraitinga muni- cipality, São Paulo state, Brazil	Córrego Pau do Bala, São Luiz do Paraitinga municipality, São Paulo state, Brazil (23°19'24.5"S 45°07'53.5"W)	Smooth	Epimeron 2 postero-distal margin acute, epimeron 3 postero-distal margin subacute	Absent	Distal border covered by setules	Setules on dorsal and ventral faces	Two apical papposerrate and setules on margins	9 serrate	Two strong pappose seta on inner margin, several simple, serrulate setae, covered by several setules	Several simple distal coverde by several setules distally	Absent	Absent	On distal margin of merus, three on distal anterior margin of carpus, 6 on pectinate border and 7 on inner face of propodus	Absent	On disto-posterior margin of propodus and on dactylus	No information
H. sakriaba Bueno & Araujo, 2013	Parque Nacional Cavernas do Peruaçu, Ponte do Areião, São Francisco River basin, Minas Gerais, Brazil	Cave of Salobo, municipality of Arinos, state of Minas Gerais, Brazil	Smooth	Epimeral plates 1-2 and urosomite 1 rounded, urosomites2-3 posterior margin serrated	Absent	Distal margin covered by short setules	Setules on apical and medial margins	Two papposerrate apical and setules on margin	8-9 serrate	Two robust papposerrate, six serrulate and several simple apical	Abundant simple	Absent	Absent	Absent	Basis, ischium and merus with denticles in comb-scales posterodistally, two rows of denticles in comb-scales on posterior lobe of carpus, posterodistal margin of propodus and dactylus with denticles in comb-scales	Absent	No information
H. warmingi Stebbing, 1899	Municipality of Lagoa Santa, Minas Gerais state, Brazil	BRAZIL: Gruta Marisol, São Paulo state (20°00'S 49°00'W)	Smooth	1 - 3 accuminated	Absent	No information	No information	Two strong and pappose apical setae	9 stout and serrate	One strong pappose seta ou inner margin and abundant setules	One strong pappose seta on inner margin and abundant setules	Absent	Absent	7 on inner face on posterior lobe and several on border pectinate of carpus, 10 on inner face of propodus	Absent	No information	Palm margin irregular
H. n. sp. 1	Ponte Alta river, municipality of Bocaina do Sul, Santa Catarina state, Brazil	-	Smooth	Accuminated	Present	Outer margin with simple setae and inner margin with setules on ventral and dorsal faces	Outer lobes with several simple and setules on dorsal and ventral faces	Two apical papposerrate and several setules dorsally	9 serrate and several setules dorsally	One papposerrate, 7 pappose, several lateral simple and dorsally setules	Several distal and lateral simple	16 on inner plate and three on outer plate	Article 4 on palp	On disto-posterior and inner margin of basis and ischium some with accessory seta, on distal margin of merus some with accessory seta, carpus with 6 on inner margin and on distal lobe, propodus with four on inner margin	Posterior margin on basis and ischium, merus, posterior lobe of carpus, disto-posterior and disto-anterior margin on propodus, on distal margin of dactylus	On posterior lobe of carpus	Proximal margin of dactylus strongly serrated
H. n. sp. 2	Flooded area, on road SC 135, municipality of Campos Novos, Santa Catarina state, Brazil	-	Smooth	Accuminated	Present	Distal border with setules and simple setae on ventral and dorsal faces	Outer lobes with simple setae and setules on dorsal and ventral faces	Two apical papposerrate setae and abundat setules with different caliber on margins	9 apical serrtae setae and setules with differente calibers on margins	Five appose, three papposerrate and simple setae, with several simple seta on inner face. Covered by several setules	Two apical pappose and simple setae, with several simple setae on inner face and margin. Covered by several setules	Ten on inner plate, two on outer plate	Article 4 on palp	Apical and dorsal on basis, two on inner margin, distal and posterior margin and lobe of carpus, two on inner margin of propodus	Basis, ischium, merus, carpus on distal margin, disto-anterior margin of propodus, palm, on inner and outer margin of dactylus	On posterior lobe of carpus	Palm slightly serrated

***Hyalella* n. sp. 2**

(Figures 9–15)

Type material. Holotype male, body length = 5.23 mm, head length = 0.77 mm, flooded area, on road SC135, municipality of Campos Novos (27°19′29″S 51°12′28″W), may/2013. Paratype male, body length 6.00 mm. Paratype female, body length = 6.79 mm, head length = 0.83 mm, four males and four females (all of them in slides and on slides CCUFLA 450).

Material complementar: thirty-eight whole males, four ovigerous females, twenty-one juveniles.

Diagnosis. Antenna 1 with plumose setae. Antenna 2 with pappose setae. Upper lip and lower lip with simple setae. Maxilla 1 with abundant setules with different calibers. Maxilla 2 with several simple setae on the inner face. Maxilliped with 10 papposerrate setae on outer plate. Gnathopod 1 with pappose bifurcate setae on basis, ischium, merus, carpus and propodus; palm slightly serrated on female. Gnathopod 2 coxal plate with two lateral pappose setae on females and several setules on inner face; basis, ischium, merus and carpus with pappose bifurcate setae; palm with margin slightly serrated on male. Pleopod with simple setae on the inner face of the peduncle and inner ramus. Uropod 3 peduncle with two simple setae on the inner face. Microtrichs present on antenna 1 and 2; maxilliped; gnathopods 1 and 2; pereopods; uropods 1 and 3 and telson.

Description of male. Mean body length: 5.8 ± 0.6 mm (*N*=9, from 4.7 to 6.8 mm); mean head length: 0.6 mm ± 0.1 mm (*N*=9, from 0.5 to 0.8 mm). Body surface smooth. Eyes round and pigmented. Coxae 1–3 subequal in size and shape, slightly overlapping. Coxa 1 is similar to 2 and 3. Coxa 3 wider than 4. Coxa 4 1.09x longer than wide, excavated posteriorly. Coxa 5 posterior lobe narrower than anterior lobe. Coxa 6 0.98x wider than long. Coxa 7 reduced. Head 1.27x smaller than the first two thoracic segments.

Epimeral plates accuminated.

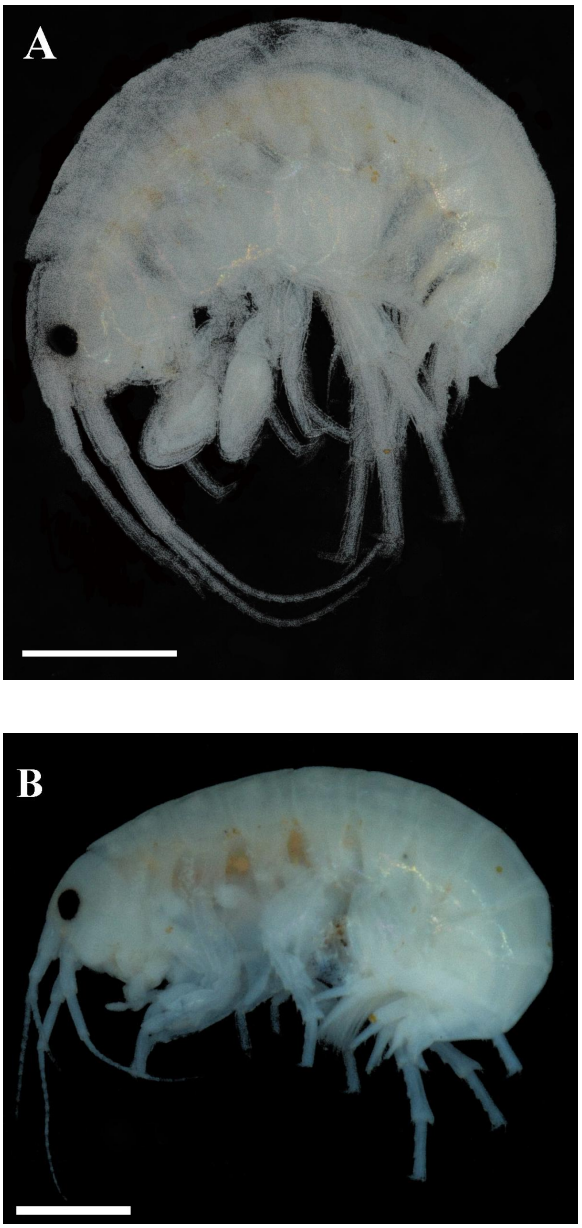

Figure 9. *Hyalella* n. sp. 2, municipality of Campos Novos, state of Santa Catarina (27°19′29″S 51°12′28″W). (A) Holotype, male, 6.62 mm. (B) Paratype, female, 7.65 mm. Scale Bars: 1 mm. Photograph: G. O. Reis.

Antenna 1 (Figure 10A) about 2.2x smaller than body length, 1.6x smaller than antenna 2, 1.3x longer than peduncle of antenna 2; peduncle 1.2x longer than head; article 1 with one plumose seta and 1.1x longer than 2, article 3 1.4x shorter than 1 and 1.3x shorter than article 2; flagellum with 9–11 articles, 1.4x longer than peduncle; aesthetascs (Figure 10B) occurring on flagellum from the article 5 to 9 distally. Microtrichs occurring from article 1 to 11, except on article 5.

Antenna 2 (Figure 10C) 1.4x smaller than body length; peduncle slender, 1.6x longer than wide, 2.3x longer than head; article 3 with one apical pappose seta and simple seta; article 4 1.5x shorter than

article 5 with two inner pappose setae; microtrichs occurring on article 5; flagellum with 13–16 articles, 1.1x longer than peduncle.

Mandible without palp; incisor toothed; left mandible (Figure 10D) lacinia mobilis with five teeth and setal row with six papposerrate setae and setules, molar process with accessory seta; right mandible (Figure 10E) with four papposerrate setae and setules, molar process broad and cylindrical with accessory seta.

Upper lip (Figure 10F) margin rounded; distal border covered by setules and simple setae on ventral and dorsal faces. Lower lip (Figure 10G) outer lobes rounded and distally notched, with simple setae and setules on dorsal and ventral faces.

Maxilla 1 (Figure 10H) inner plate slender, 2.4x shorter than outer plate, with two apical papposerrate setae and abundant setules with different caliber on margins. Outer plate with nine apical serrate setae and setules with different caliber. Palp short, uniarticulate, 1.7x longer than wide, reaching less than half of the distance between the base of the palp and base of setae on outer plate, with one distal long seta and setules on margin.

Maxilla 2 (Figure 10I) inner plate with subequal length to the outer plate, with five apical pappose, three apical papposerrate and several simple setae on inner face; outer plate with two apical pappose setae, several apical simple setae and several simple setae on inner face and margin; inner and outer plates covered by several setules.

Maxilliped (Figure 10J–L) inner plate 2.8x longer than wide, with three apical cuspidate setae, ten papposerrate setae and several setules, without comb-scales; outer plate 1.2x longer than inner plate, with two papposerrate, two pappose and several simple setae, without comb-scales; palp 5.4x longer than inner plate, with four articles; article 1 1.3x longer than wide, outer margin with one simple setae; article 2 1.1x longer than wide, inner margin several long simple setae; article 3 1.5x longer than wide, inner margin with several long simple setae, outer margin with eight pappose setae, long simple setae and setules, without comb-scales; article 4 unguiform, 1.3x shorter than third article, 3.3x longer than wide, 1.3x longer than nail, with distal simple seta, with comb-scales, and distal nail present. Microtrichs present on inner and outer plate, articles 1 and 2 of palp.

Gnathopod 1 (Figure 11A–C) subchelate; coxal plate 1.5x wider than long, with several simple setae on the margin and two inner pappose setae, microtrichs present; basis with dorsal and apical pappose bifurcate setae, apical simple setae with accessory seta and several comb-scales; ischium with several apical simple setae with accessory seta, with comb-scales; merus with simple setae with accessory seta and comb-scales on distal margin; carpus 1.4x longer than wide, 1x shorter than propodus, lateral distal lobe produced with two pappose bifurcate and one simple seta on inner margin, distal anterior margin with several pappose bifurcate setae, comb-scales and polygonal pattern; propodus 1.8x longer than wide, hammer-shaped, with several simple long setae on disto-anterior margin, comb-scale present, inner margin with two pappose bifurcate setae, with few simple setae on the disto-posterior margin, with comb-scales;

palm slope transverse, with many simple setae and comb-scales, margin slightly convex, posterior distal angle with two long and strong cuspidate setae with accessory seta; dactylus claw-like, comb-scales present on inner and outer margin, with one plumose seta dorsally.

Gnathopod 2 (Figure 11D–F) subchelate; coxal plate 1.8x wider than long, with simple setae on the margin and microtrichs present on inner face; basis with two apical pappose bifurcate setae, one apical and four simple setae like lamellate with accessory seta on disto posterior margin; ischium with several simple setae with accessory seta and comb-scales on posterior margin, microtrichs present; merus with few simple setae with accessory seta on posterior margin, with comb-scales; carpus 2.1x wider than long, posterior lobe slim produced between merus and propodus, forming scoop-like structure, margin with comb-scales, several pappose bifurcate seta and polygonal pattern; propodus ovate, 1.3x longer than wide, comb-scales present on margin distal posterior; palm 1.3x smaller than posterior margin of propodus, slope oblique, margin slightly irregular with one row of several cuspidate setae with an robust accessory seta and several simple setae, posterior distal angle with two strong cuspidate setae and with a cup for dactylus; dactylus claw-like, congruent with palm, plumose seta dorsally, comb-scales absent.

Pereopods 3 to 7 (Figure 12A–E) simple. Pereopod 3 and 4 with several simple setae with accessory seta on basis posterior margin, pereopod 3 with two pappose setae; merus, carpus and propodus posterior margin with several cuspidate and simple setae with accessory seta; dactylus 2.1x shorter than propodus, in both, with one plumose seta dorsally. Pereopods 5 to 7 merus, carpus and propodus posterior margin with several cuspidate setae some of them with accessory seta, dactylus 2.4x, 2.8x and 2.4x shorter than propodus, respectively, with one plumose seta dorsally. Pereopods 3 and 4 similar sizes; pereopod 5 smaller than others; pereopod 6 longer than pereopod 7. Microtrichs present on coxal plates of pereopods 3 to 6; on basis of pereopods 5 to 7; on ischium of pereopods 3, 4, 6 and 7; on merus of pereopods 3, 4 and 6; on carpus of pereopods 3, 5, 6 and 7; on propodus of pereopods 3, 5, 6 and 7.

Pleopods (Figure 13A) peduncle 2.9x longer than wide, 1.6x the mean size of rami, with two coupling spines and one simple setae on inner face; both rami with several plumose setae, inner ramus with one simple setae on inner face.

Uropod 1 (Figure 13B) 1.31x longer than uropod 2; peduncle 1.4x longer than outer ramus and 1.3x to inner ramus, with six cuspidate setae, some of them with accessory seta; inner ramus slightly longer than outer ramus, 5.3x longer than wide, with three dorsal cuspidate setae on the margin with accessory seta and six apical cuspidate setae with accessory seta, with curved seta; outer ramus 5.4x longer than wide, with three dorsal cuspidate setae with accessory seta and four apical cuspidate setae, one with accessory seta. Microtrichs present on peduncle and outer ramus.

Uropod 2 (Figure 13C) 1.4x smaller than uropod 1, peduncle 1.2x longer than outer ramus and 1x than inner ramus, 2.0x wider than outer ramus and 1.7x than inner ramus, with four cuspidate setae with accessory seta; inner ramus with two dorsal cuspidate setae with accessory seta and seven cuspidate setae apically; outer ramus with two dorsal cuspidate setae and four apical cuspidate setae. Microtrichs present on

peduncle and outer ramus.

Uropod 3 (Figure 13D) 1.9x shorter than peduncle of uropod 1 and 1.2x than peduncle of uropod 2; peduncle 1.6x longer than wide, with five apical long cuspidate setae with accessory seta and two simple setae on inner face; inner ramus absent; outer ramus uniarticulate, subequal in length to the peduncle, 3.6x longer than wide, with three cuspidate and two simple setae. Microtrichs present on peduncle.

Telson (Figure 13E and F) entire, 1.2x longer than wide, apically rounded, with four apical cuspidate setae with accessory seta, with one lateral pappose seta; microtrichs present. Variations: three simple setae on inner face and one lateral plumose setae

Coxal gills sac-like present on pereonites 2 to 6. Sternal gills tubular present on pereonites 2 to 7.

Female (Figure 14). Mean body length: 5.19 ± 0.89 mm (*N* = 10), minimum body length = 4.22 mm, maximum body length = 7.10 mm; mean head length: 0.54 ± 0.55 mm (*N* = 10), minimum head length = 0.48 mm, maximum head length = 0.83 mm.

Gnathopod 1 (Figure 15A) similar to male Gnathopod 1; basis with one pappose seta on inner face and several apically; ischium, merus and carpus with several simple setae with accessory seta; carpus 1.7x longer than wide, posterior lobe produced and forming scoop-like structure, with pectinate margin, with several pappose bifurcate setae and comb-scales; propodus 1.3x longer than wide, hammer-shaped, with comb-scales, palm 2.7x shorter than posterior margin of propodus, inner margin with five pappose bifurcate setae, palm slope transverse slightly irregular; dactylus claw-like, with plumose seta and comb-scales. Microtrichs present on coxal plate, ischium and propodus.

Gnathopod 2 (Figure 15B) similar in size and shape to Gnathopod 1; coxal plate with two pappose setae on posterior margin and several setules on inner face; basis, ischium and merus with several simple setae like lamellate seta; basis, merus and carpus with several pappose setae; posterior lobe on carpus with comb-scales, several pappose setae and polygonal pattern; propodus 1.7x longer than wide, with comb-scales, inner margin with five cuspidate setae with robust accessory seta; palm slightly irregular, transverse with several long simple setae; dactylus with plumose setae and several comb-scales. Microtrichs present on coxal plate, ischium and propodus.

Telson (Figure 15C and D) 1.2x longer than wide, similar in shape to male, with three apical cuspidate setae with accessory seta, one lateral pappose and three pappose on inner face, microtrichs present. Variations: four apical cuspidate and three simple setae on inner margin.

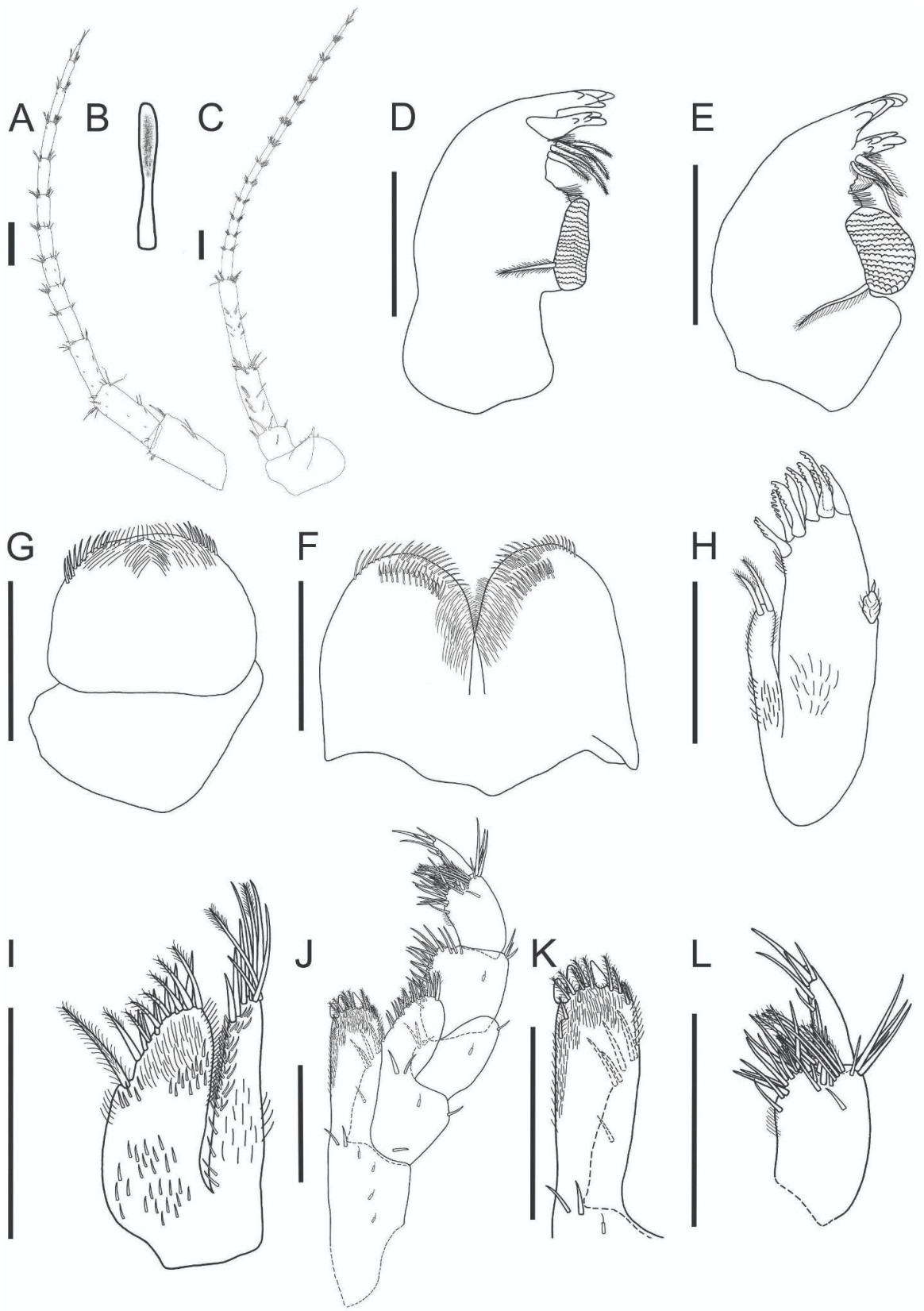

Figure 10. *Hyalella* n. sp. 2, municipality of Campos Novos, state of Santa Catarina (27°19′29″S 51°12′28″W). Paratype male, 6.00 mm, CCUFLA 450. (A) Antenna 1. (B) Illustration schematic of aesthetascs. (C) Antenna 2. (D) Left mandible. (E) Rgth mandible. (F) Lower lip. (G) Upper lip. (H) Maxilla 1. (I) Maxilla 2. (J) Maxilliped. (K) Detail of article 4, article 3 and nail of maxilliped. Scale bars, 0.2 mm.

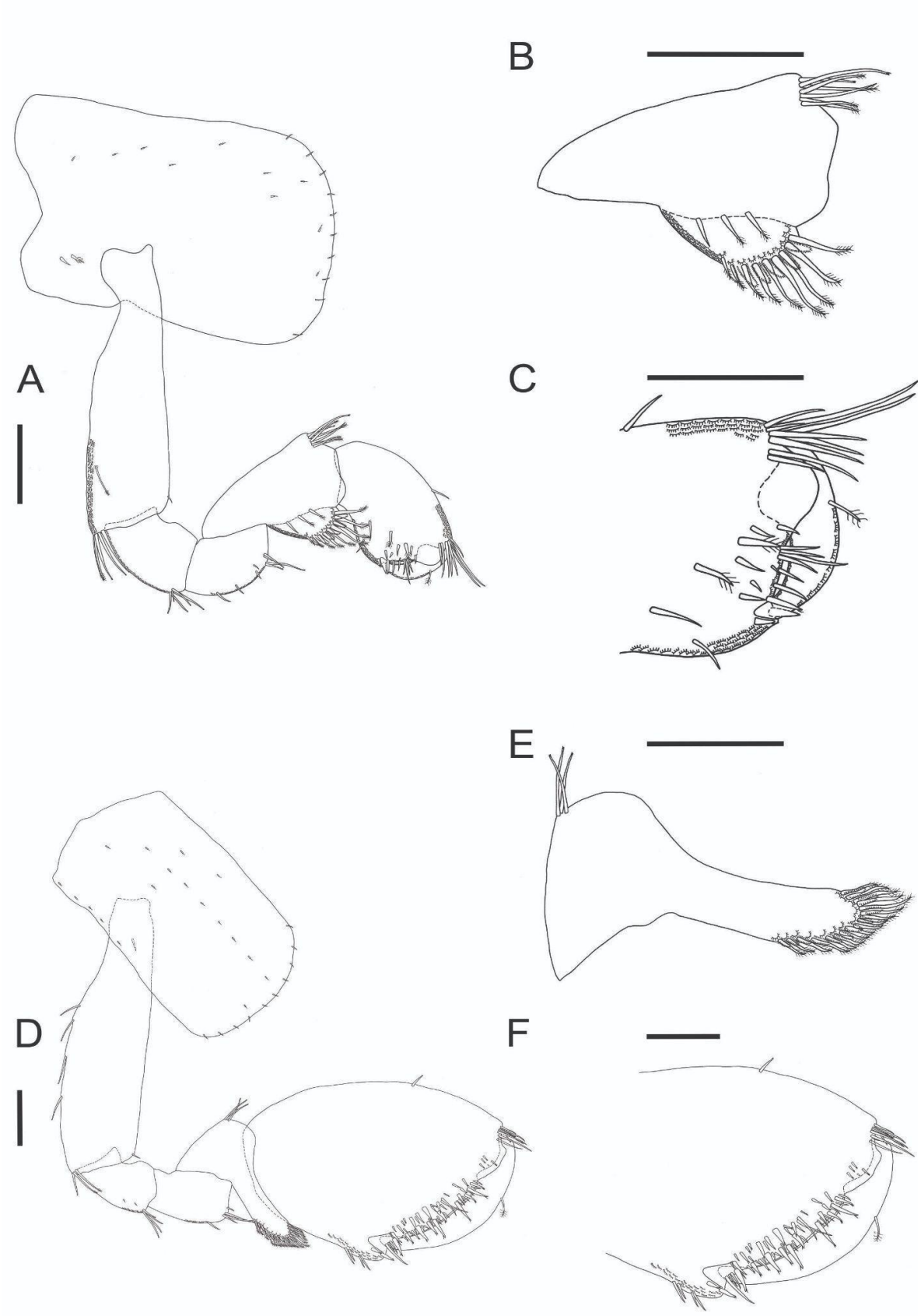

Figure 11. *Hyalella* n. sp. 2, municipality of Campos Novos, state of Santa Catarina 27°19′29″S 51°12′28″W). Paratype, male, 6.00 mm, CCUFLA 450. (A) Gnathopod 1. (B) Detail of carpus. (C) Detail of propodus and dactylus. (D) Gnathopod 2. (E) Detail of carpus. (F) Detail of propodus and dactylus. Scale bars, 0.2 mm.

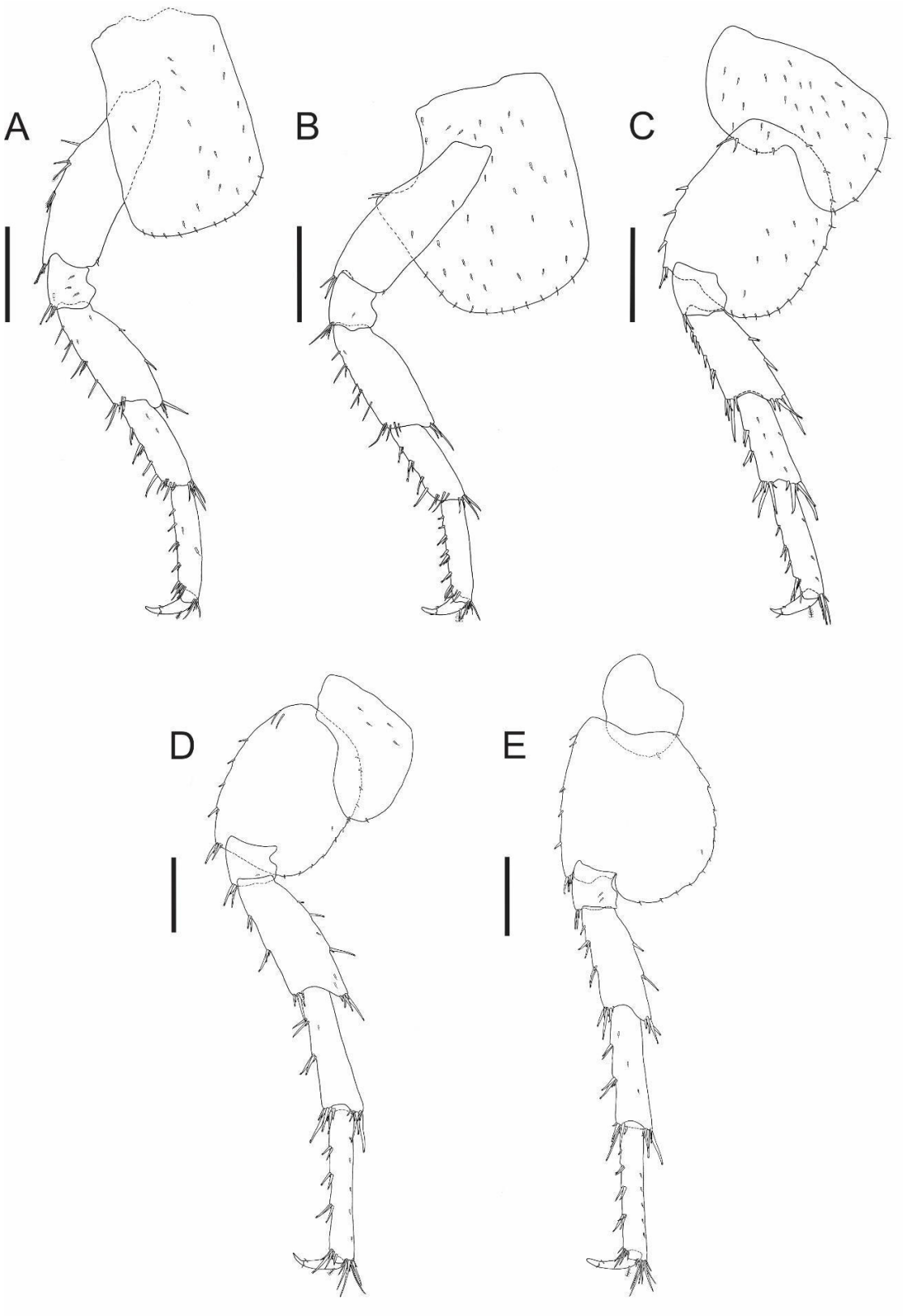

Figure 12. *Hyalella* n. sp. 2, municipality of Campos Novos, state of Santa Catarina (27°19′29″S 51°12′28″W). Paratype, male, 6.00 mm, CCUFLA 450. (A) Pereopod 3. (B) Pereopod 4. (C) Pereopod 5. (D) Pereopod 6. (E) Pereopod 7. Scale bars, 0.4 mm.

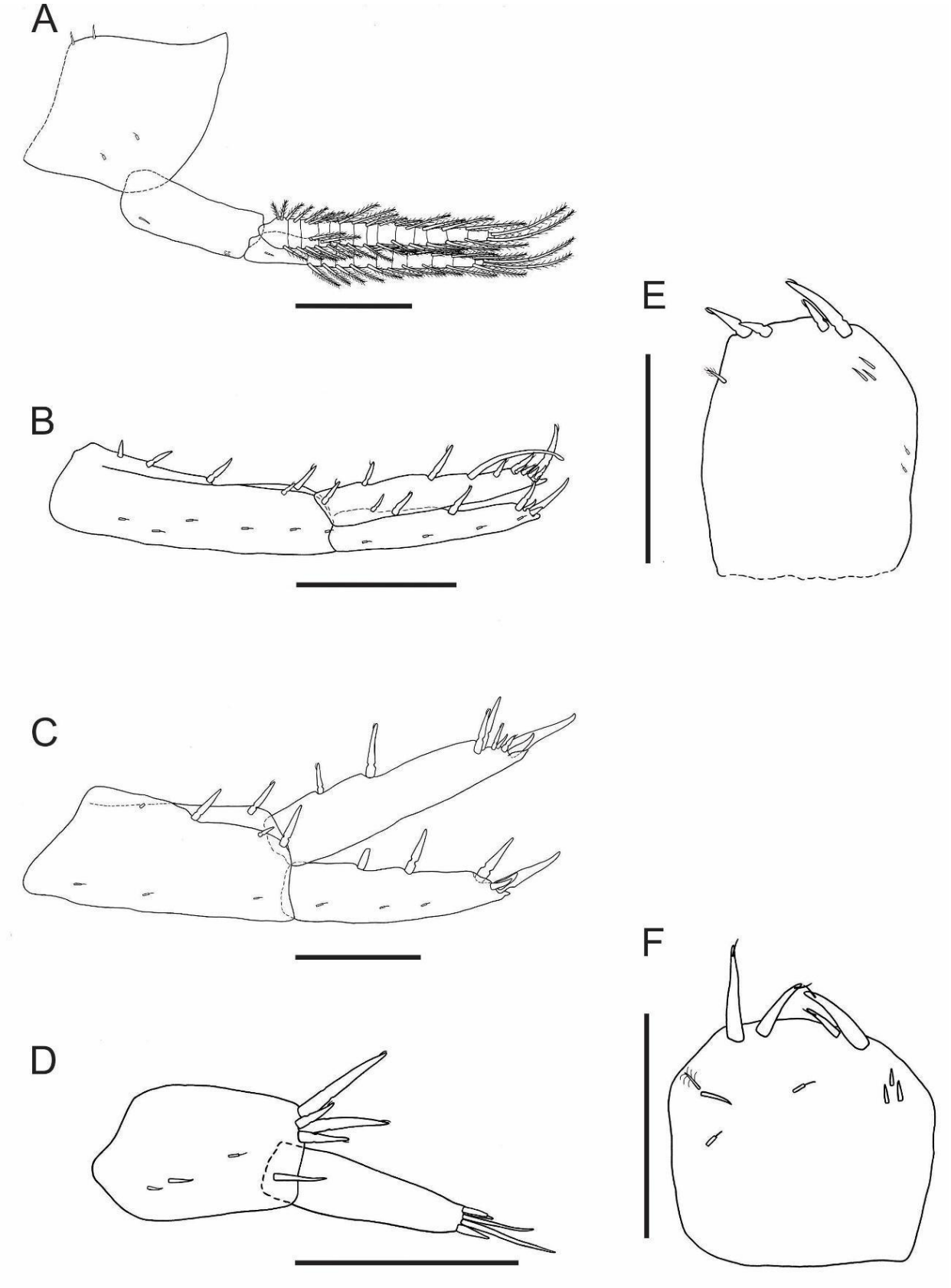

Figure 13. *Hyalella* n. sp. 2, municipality of Campos Novos, state of Santa Catarina (27°19′29″S 51°12′28″W). Paratype, male, 6.00 mm, CCUFLA 450. (A) Pleopod. (B) Uropod 1. (C) Uropod 2. (D) Uropod 3. (E) and (F) Telson. Scale bars, A and B - 0.4 mm; C to F - 0.2 mm.

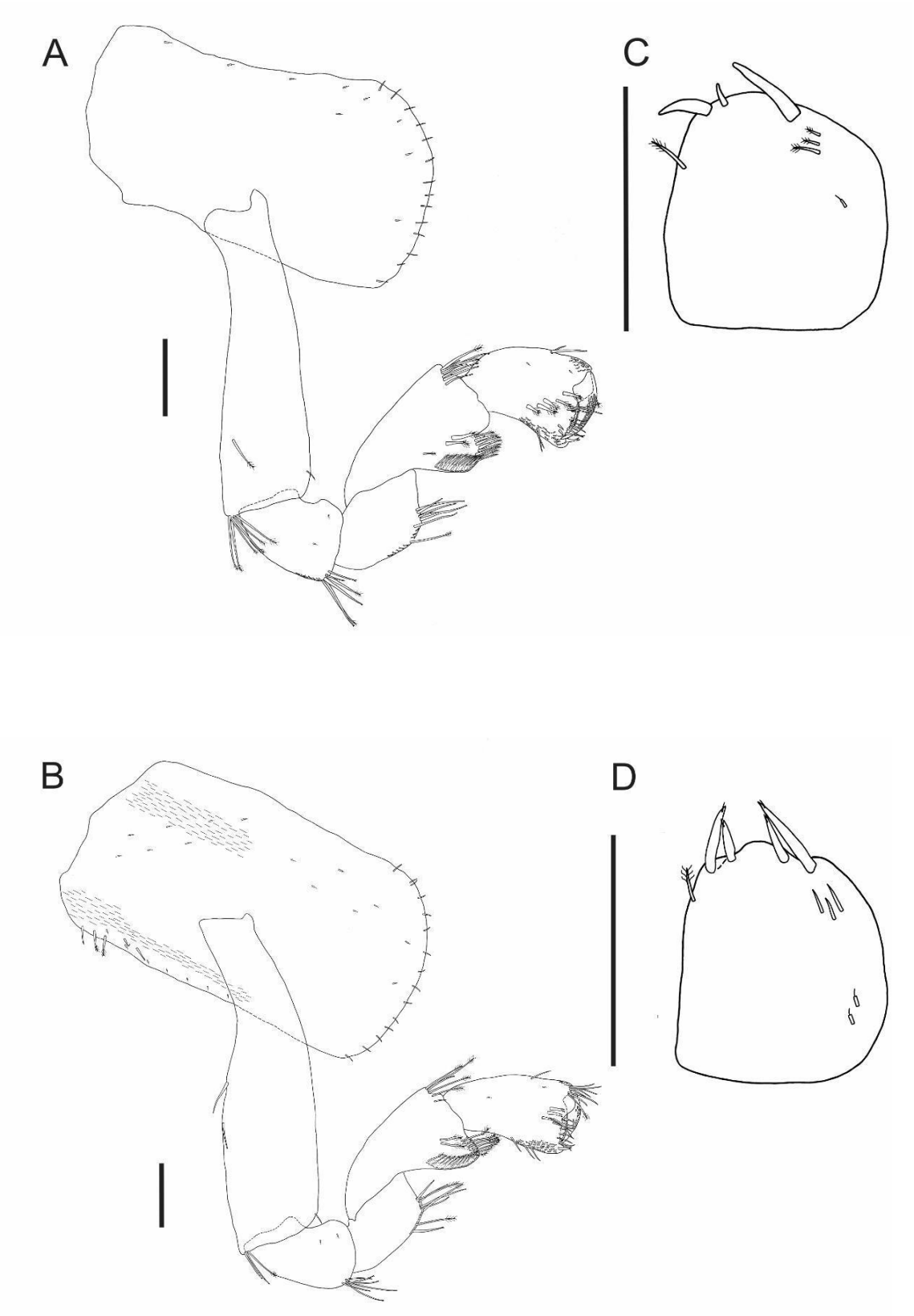

Figure 15. *Hyalella* n. sp. 2, municipality of Campos Novos, state of Santa Catarina (27°19′29″S 51°12′28″W). Paratype, female, 7.62 mm, CCUFLA 450. (A) Gnathopod. (B) Gnathopod 2. (C) and (D), Telson. Scale bars, 0.2 mm.

Taxonomical remarks. *Hyalella* n. sp. 2 share the presence of curved seta in the inner ramus of uropod 1 with 19 species (*H. pernix* (Stebbing, 1899), *H. curvispina* Shoemaker, 1942, *H. pampeana* Cavalieri, 1968, *H. brasiliensis* Bousfield, 1996, *H. montenegrinae* Araujo & Bond-Buckup, 1998, *H. castroi* González, Bond-Buckup & Araujo, 2006, *H. pleoacuta* González, Bond-Buckup & Araujo, 2006, *H. bonariensis* Bond-Buckup, Araujo & Santos, 2008, *H. carstica* Bastos-Pereira & Bueno, 2012, *H. kaingang* 2011, *H. xakriaba* Bueno & Araujo, 2013, *H. gauchensis* Streck & Castiglioni, 2017, *H. georginae* Streck & Castiglioni, 2017, *H. palmeirensis* Streck-Marx & Castiglioni, 2020, *H. catarinensis*, *H. rioantensis*, *H. sambaqui*, *H. lagoana*, *H. minuana* Talhaferro & Bueno, 2021). In this group, the new species differs from by presence of plumose setae on antenna 1 (except from *H. georginae*), presence of pappose setae on antenna 2 (except from *H. catarinensis*), palm with irregular margin on gnathopod, presence of pappose setae on coxal plate, presence of simple setae on peduncle and inner ramus of pleopods, microtrichs present on antennae 1 and 2, maxilliped, gnathopods 1 and 2, pereopods (except from *H. sambaqui*), uropods 1and 3, telson. The new species differs from both *H. georginae*, *H. catarinensis* and *H. sambaqui* from by presence of simple setae on upper lip, presence of papposerrate seta on maxilliped and palm slightly serrated on gnathopod 2.

In this study we described two new species, *Hyalella* n. sp. 1 and *Hyalella* n. sp. 2, that presents a pappose bifurcate seta, a new type of seta described here for the first time. The new species share some characters like absence of flanges, epimeral plates accuminated, plumose setae on antenna 1 and pappose setae on antenna 2, five teeth on lacinia mobilis and papposerrate setae on mandibles, simple setae on maxilla 1 and 2, maxilliped with comb-scales on article 4 of palp, presence of pappose bifurcate setae on gnathopods, polygonal pattern on posterior lobe of carpus of gnathopods, palm slope oblique on gnathopod 2, simple setae on inner face of peduncle on uropod 3. Both new species present microtrichs on antennae; on inner plate, outer plate and article 2 of palp on maxilliped; on coxal plate of gnathopod 1 and 2; on peduncle and outer ramus of uropod 1 and 2; on peduncle of uropod 3 and on telson.

Nonetheless, the new species differ through some important characters. In the comparison between the aesthetascs present on antennae 1, it was possible to determine that the species differ in morphology (see figures 3B and 10B). *Hyalella* n. sp. 1 present plumose setae on antenna 2. *Hyalella* n. sp. 2 shows setules with different calibers on inner and outer plates on maxilla 1, in addition present pappose setae on outer plate of maxilla 2. *Hyalella* n. sp. 1 present microtrichs on inner/outer plates and on article 2 of palp on maxilliped, in contrast *Hyalella* n. sp. 2 presents microtrichs not only in these articles but also in article 1. The two new species present microtrichs on the coxal plate of gnathopod 2, but only *Hyalella* n. sp. 1 present them on propodus. The same situation occurs in relation to pappose setae on coxal plate of gnathopod 2, both new species exhibit them, but *Hyalella* n. sp. 1 presents them on basis, merus, carpus and propodus as well.

When comparing both species, *Hyalella* n. sp. 1 stands out for share presence of comb-scales on ischium, merus and propodus on gnathopod 2, but also for having on the coxal plate and merus. *Hyalella* n. sp. 1 present the proximal margin of dactylus on gnathopod 2 strongly serrated and *Hyalella* n. sp. 2 exhibit the palm slightly serrated on gnathopod 1 (female) and 2 (male). The two new species present microtrichs on the coxal plate of gnathopod 2, but only *Hyalella* n. sp. 1 present them on dactylus and *Hyalella* n. sp. 2 exhibit on ischium. In the comparison between the new species, both present microtrichs on the basis of

pereopods 5 to 7, but only *Hyalella* n. sp. 1 present on coxal plate and merus of pereopod 7, on the carpus of pereopod 4, on the dactylus of pereopod 6 and 7. In contrast, only *Hyalella* n. sp. 2 present microtrichs on ischium of pereopod 6, on merus of pereopod 3 and on propodus of pereopod 3. *Hyalella* n. sp. 2 exhibit simple seta on peduncle and on inner ramus of pleopod, as well as present a curved seta on inner ramus of uropod 1, differing from *Hyalella* n. sp. 1. Finally, the new species exhibit microtrichs on outer ramus of uropod 1 and uropod 2, but only *Hyalella* n. sp. 1 also present on peduncle and outer ramus.

Habitat. Epigean.

Discussion

The absence of troglomorphisms allows distinguishing *Hyalella* n. sp. 1 and *Hyalella* n. sp. 2 from *H. caeca* Pereira, 1989 *H. spelaea* Bueno & Cardoso, 2011; *H. imbya* Rodrigues & Bueno, 2012; *H. epikarstica* Rodrigues, Bueno & Ferreira, 2014; *H. formosa* Cardoso & Araújo, 2014; *H. veredae* Cardoso & Bueno, 2014 and *H. troglofugia* Bastos-Pereira, Oliveira & Ferreira, 2018, all of them are described from Brazil.

Among all species recorded in Brazil, *H. sambaqui* (described from Passo de Torres municipality, state of Santa Catarina,Brazil), is the only one reported to present microtrichs, even if it is only in the coxal plate. In the two new species, microtrichs were recorded for the first time in the propodus of gnathopod 1; gnathopod 2 dactylus and ischium; on basis of pereopods 5 to 7; on ischium of pereopods 3, 4, 6 and 7; on merus of pereopods 3, 4, 6 and 7; on carpus of pereopods 3 to 7; on propodus of pereopods 3 to 7; on dactylus of pereopods 6 and 7; uropods 1 to 3. No material was evaluated to check the presence or absence of microtrichs in the structures, all comparisons were based only on descriptions deposited in the literature, so it is necessary to analyze the other species recorded in Brazil to check for these microtrichs.

The scarcity of data is not limited to species distribution records, but also information on their habitat and conservation status. In the case of freshwater crustaceans, many taxonomic studies on freshwater crustaceans have evaluated the conservation status of the species following the criteria of the International Union for Conservation of Nature - IUCN (IUCN 2012). An example is the genus *Aegla* Leach, 1820 and *Parastacus* Huxley, 1879 that often live in conditions similar to the species of *Hyalella*, and are potentially under the same threats (Huber *et al.* 2018; Santos *et al.* 2017).

In the description of *H. bala* and *H. virgineae* the authors realized the analysis using IUCN, both species were classified as vulnerable (VU) under subcriteria D2. Due to endemism of the species, the authors mention that not only these two species but many others of the genus may be also vulnerable (Penoni *et al.* 2021). Unfortunately, it was not possible to assess the conservation status of the species in this study, mainly due to the lack of information about their habitat, highlighting the need for better information on the sampling environment.

In this study, we increased the knowledge about the genus *Hyalella* with the description of two new species. Therefore, there are 39 species for the Brazilian territory, six of them with records for the state of Santa Catarina. In addition, the present study reports a new type of seta and microtrichs occurring in other appendages that have never been described before.

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CONSIDERAÇÕES FINAIS

As dissertações costumam ser feitas no ambiente de laboratório, discutindo as dúvidas com a orientação e trocando ideias com os colegas. No entanto, esta dissertação se desenvolveu em sua maior parte longe de tudo isso, dentro de um quarto, no decorrer de uma pandemia e com discussões/dúvidas solitárias. No total foram dois anos e seis meses de mestrado, sendo os primeiros seis pré pandemia. Ao longo dos dois anos, poucas foram as visitas ao laboratório, idas essas que precisavam ser com todos os cuidados possíveis para evitar contaminação. Grande parte das ilustrações, medidas e identificações foram feitas com o uso de máscara e distanciamento social no laboratório. Em uma época em que eu e minha orientadora não podíamos nos ver, eu precisei confiar na minha intuição e conhecimentos sobre os animais. Enquanto tudo era caos eu precisava ser calmaria para dissecar e desenhar. Em um momento em que ninguém sabia ao certo o que seria dali para a frente, o que estava acontecendo e como lidar com tudo que estava desmoronando, essa dissertação precisou ser feita.

Em 2019 quando ingressei no mestrado diversas foram as ideias e expectativas em relação a este estudo. Ideias essas que vieram da banca de acompanhamento, da orientação e de uma aluna que estava em crescimento dentro da ciência e da taxonomia. Porém, com o passar do tempo aprendemos que as coisas nunca vão acontecer como planejamos em um projeto e nem conseguimos prever que um isolamento seria necessário por quase dois anos. Durante a execução deste estudo foram necessárias muitas ressignificações, entendendo que independente de executarmos três objetivos ou um, a dissertação teria sua grandiosidade. Seja pelo significado pessoal ou científico. Escutei uma vez que o número de páginas ou quantos objetivos foram concluídos não definia meu título, no final ele seria o mesmo.

Na academia somos ensinados que números são a única coisa importante na etapa em que estamos. Ao longo do mestrado precisei aprender a observar a minha evolução em relação ao táxon de estudo, não se estava descrevendo duas ou quatro espécies, foi necessário entender que determinada estrutura que conseguia identificar representava meu amadurecimento. Essa observação se tornou algo recorrente, conseguia ver que o olhar havia se expandido desde a graduação, estruturas antes visualizadas sem muita atenção, no mestrado ganharam uma identidade e foram relacionadas a algo envolvendo comportamento/ ecologia. Sempre concluímos um trabalho ansiando fazer mais, poderia ter escrito algo diferente, estruturado determinado tópico de outra maneira. Nunca vai estar perfeito. Talvez aí more a grande magia da ciência, nada será perfeito e essa ânsia do trabalho que se encerra alimenta os próximos trabalhos.

Cada pós-graduando carrega uma bagagem e uma origem. Comigo não seria diferente. Esse mestrado nasceu como um sonho distante ainda lá em Minas Gerais, quase concluindo a graduação. Sempre desejei viajar muito e viver em outros lugares, unindo isso ao desejo de estudar mais o gênero *Hyalella* e a orientação que eu desejava, cheguei em Porto Alegre. Sempre digo que sonhar é bom, mas realizar é ainda melhor. Porém, viver longe da família e dos amigos foi um grande desafio. Além de fazer a dissertação durante a pandemia, um processo de luto também ocorria somado à saudade de todos.

Para finalizar, esta dissertação foi feita por uma mulher, com orientação e coorientação de mulheres, com uma banca examinadora de mulheres e homenageando duas mulheres. Cientistas incríveis, generosas, que lutaram/lutam pela biodiversidade e igualdade na ciência. Aqui cabe outro amadurecimento, entender que mulheres precisam ocupar mais espaços, precisam receber demandas e propostas de trabalhos, reconhecimento pelo trabalho realizado e pelas ideias propostas. Mulheres precisam ser ouvidas e vistas. Entendi que também tinha um dever de executar isso no meu mestrado. Me juntei aos grupos Mulheres na Zoologia e Women in Crustacean Society com mulheres que lutam todos os dias para que as coisas mudem. Espero que no futuro mais e mais mulheres ocupem lugares de destaque, sejam convidadas para parcerias e sejam ouvidas. Por homens e mulheres que não lutam pelas suas.