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CONSIDERATIONS REGARDING *HYLONISCUS INFLATUS* (ISOPODA, ONISCIDEA) – A RARE SPECIES OF *HYLONISCUS* FROM ROMANIA

ANDREI GIURGINCA*

Abstract. The paper provides a completion of the description of *Hyloniscus inflatus* given by Verhoeff in 1927.

Key words: Isopoda, Oniscidea, Trichoniscidae, *Hyloniscus*, Romania.

1. INTRODUCTION

The genus *Hyloniscus* established by Karl Verhoeff in 1908 contains 26 species (SCHMALFUSS, 2003) which, excepting the expansive species *Hyloniscus riparius*, are more or less restricted in various regions of Eastern and Central Europe (TABACARU, 1972).

The genus *Hyloniscus* may be defined as: terrestrial isopod (Oniscidea) with two fused *vasa deferentia*, 3 to 10 mm in size, smooth tegument with a well-developed chromatophore net and trapezoidal telson (TABACARU, 1996). A single pigmented ocellus; antennule with three articles, the first one with 9–11 aesthetascs. Fourth segment of antenna swollen and with glands; antenna flagellum with three to six distinct articles; right mandible with a sole penicillum, the left mandible with three penicilli between the *pars incisiva* and *pars molaris*; no penicilli on the *pars molaris* (TABACARU, 1996). Pereiopode VII meros with a basal protrusion frequently changing into an inwardly-oriented hook (TABACARU, 1996). Genital apophysis longer than endopodite 1 and narrowed toward the tip; first male pleopode with a big, elongated triangular exopodite (longer than the genital apophysis), its tip lacks a stem and is more or less well-differentiated in a lobe generally covered by scales, while the endopodite, measuring approximately half the length of the exopodite and two-thirds of the length of the genital apophysis, presents a triangular basal article bearing a stem which is absent only rarely (TABACARU, 1972; TABACARU, 1996). The second male pleopode presents a wider than long exopodite and a robust, bi-articulate endopodite with the distal article slightly narrowed toward the tip which has a complex terminal structure (TABACARU, 1972; TABACARU, 1996).

In Romania, the genus *Hyloniscus* contains eight species: *H. dacicus* Tabacaru, 1972, *H. flammuloides* Tabacaru, 1972, *H. inflatus* Verhoeff, 1927, *H. mariae* Verhoeff, 1908, *H. motasi* Radu, 1976 (= *Ropaloniscus motasi* Radu, 1976), *H. riparius* (C.L. Koch, 1838), *H. siculus* Mehely, 1929 and *H. transsylvanicus* (Verhoeff, 1901) (= *H. banaticus* Verhoeff, 1927) (TABACARU, 1996; SCHMALFUSS, 2003).

One of the least known species is *Hyloniscus inflatus* described by Karl Verhoeff in 1927 from Hohen Rinne (Păltiniș, Cindrel Mountains, Southern Carpathians) in a forest at 1,400 m altitude (VERHOEFF, 1927). Only three papers mention its presence in Romania: the original description of Verhoeff (VERHOEFF, 1927) and two papers of Tabacaru (TABACARU, 1972; TABACARU, 1996) while Radu (RADU, 1977; RADU, 1983) does not even mention the species.

Since in his paper Verhoeff gave only relatively small drawings with few details, we intend here to continue and complete the description of Verhoeff by providing larger and more detailed drawings of *H. riparius* which might help the species identification in case it might be found in other locations than the original one.

2. MATERIAL AND METHODS

In order to redraw the main characters of *H. inflatus* we have studied the holotype of the species described by Verhoeff and loaned by The Zoological Museum of Munchen to dr. Ionel Tabacaru.

All taxonomically important structures were observed with an Olympus CH2 microscope. For the drawings, we used the Olympus CH2 microscope with an Olympus camera lucida.

3. DESCRIPTION OF *H. INFLATUS*

The description of the main taxonomically significant characters of *H. inflatus* follows VERHOEFF (1927) and our own observations (see Figs. 7 & 8).

Antenna

The articles of the antenna are densely scaled, the third article as long as the fourth. The fifth antennal segment is strongly bent internally and externally after the base.

On the fourth, inflated and slightly rhomboidal, segment there are five sensorial pits, two near the proximal part of the article and three very close to the distal part of the article.

Near the first two proximal sensorial pits there is a dense row of hairs directed towards the base of the antennal article and partially curled back on the

external edge. Distally, there is a second hair bush, somewhat sparser and bent backwards toward the base of the article.

Tergites

With only sparse and short bristles, but with numerous, triangular, pointed scales.

Pereiopode VII

Meropodite with 4+4 spines on the ventral edge. The hook is very short and its tip is only slightly protruding.

Genital apophysis

Slightly club-like, gradually widening towards the conical tip.

Pleopode 1 male

End lobe of the exopodite not divided into two overlapping lobes (no upper lobe), with a protrusion (a “hump” as Verhoeff described it) instead of an upper groove, end lobe with an ample wavy-cell structure and inside there is a shortened incision.

Pleopode 2 male

Endopodite strongly S-shaped seminal channel, the inner edge is very clearly transversally striated, the tip presents two small points.

In the following a key to the species of *Hyloniscus* from Romania is provided to ease their identification.

4. KEY TO THE *HYLONISCUS* SPECIES OF ROMANIA

The key uses characters from VERHOEFF (1908; 1927), MÉHELY (1929), RADU (1977; 1983) TABACARU (1972; 1996), TABACARU & GIURGINCA (2014).

- 1 (2) In male, the shaft of the 4th antenna segment without secondary sexual differentiations (simple, not inflated, lacking sensory pits)3
 2 (1) In male, the shaft of the 4th antenna segment is sexually differentiated (inflated, with sensory pits and hairs)11
 3 (6) Pleopode 2 male with the endopodite robust to the tip and with a complex structure.....4
 4 (5) The spur at the base of pereiopode VII male meros is narrow and elongated like a hook, at least twice as high than the width of its base, perpendicular on the segments axis and with the tip distally curved; the tip of the endopodite of pleopode 2 male ends with a sharp, filamentous extension, pointing posteriorly (Fig. 1); body length: 4–6 mm.....*Hyloniscus riparius* (C.L. Koch, 1838)

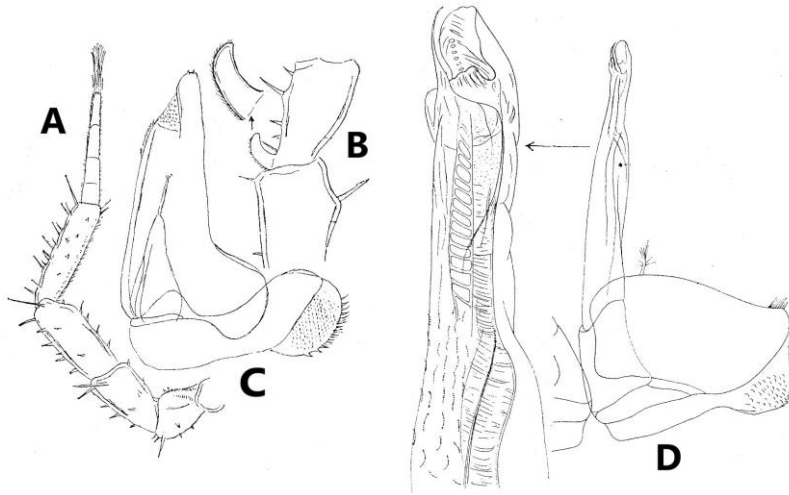


Fig. 1. *Hyloniscus riparius*: A: Antenna; B: Ischion and meros of pereopode VII male; C: Pleopode 1 male; D: Pleopode 2 male (after Radu, 1983).

5 (4) The spur at the base of pereopode VII male meros is short and wide at the base, strongly beveled; the tip of endopodite of the pleopode 2 male ends with a medially opening cup, edged by a fold with two spines, a longer and a shorter one, both posteriorly directed (Fig. 2); body length: 4.5–7 mm.....
 *Hyloniscus transsylvanicus* (Verhoeff, 1901)

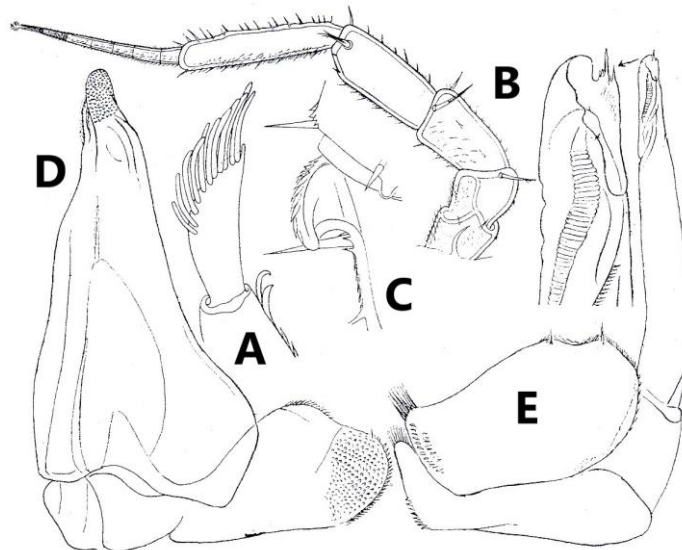


Fig. 2. *Hyloniscus transsylvanicus*: A: Antennule; B: Antenna; C: spur on the meros of pereopode VII male; D: pleopode 1 male; E: pleopode 2 male (after Radu, 1983).

6 (3) Pleopode 2 male with the endopodite very narrow in the distal part.....7

7 (8) The spur at the base of the pereopodite VII male meropodite is narrow and elongated like a hook, while the ischiopodite presents on the posterior edge close the sternal margin a semicircular scale brush; endopodite of pleopode 1 male over three times longer than its base width (Fig. 3); body length: 3–4 mm.....
.....*Hyloniscus dacicus* Tabacaru, 1972

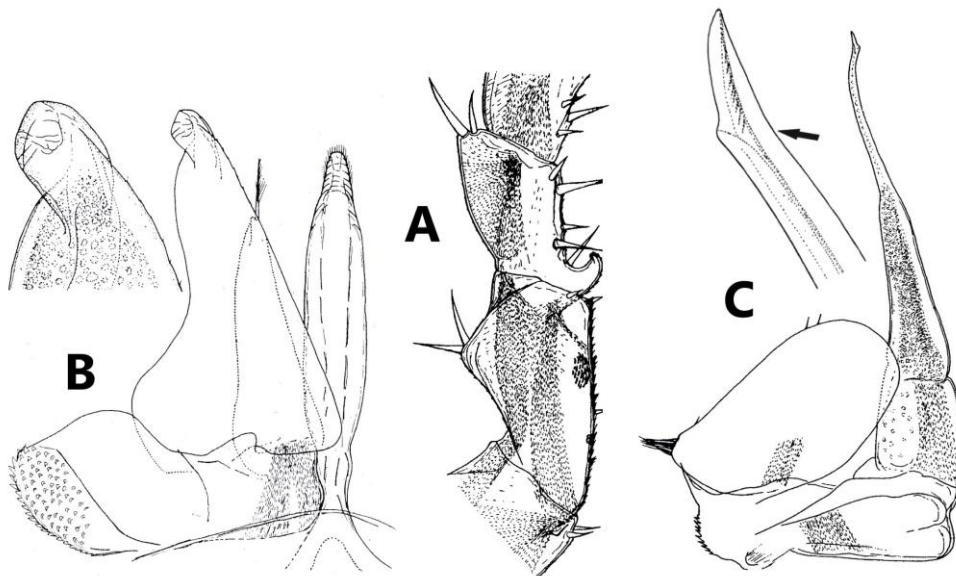


Fig. 3. *Hyloniscus dacicus*: A: Ischion and meros of pereopodite VII male; B: Pleopode 1 male; C: pleopode 2 male (after Tabacaru, 1972).

8 (7) The spur at the base of the pereopodite VII male is short and wide at the base, ischiopodite without a scale brush on the posterior edge; endopodite of pleopode 1 male one or two times longer than its base width.....9

9 (10) Endopodite of pleopode 2 male suddenly narrows at half its length and the distal part is shaped like a rod strongly curved toward the exterior (Fig. 4); body length: 4 mm..... *Hyloniscus motasi* (Radu, 1976)

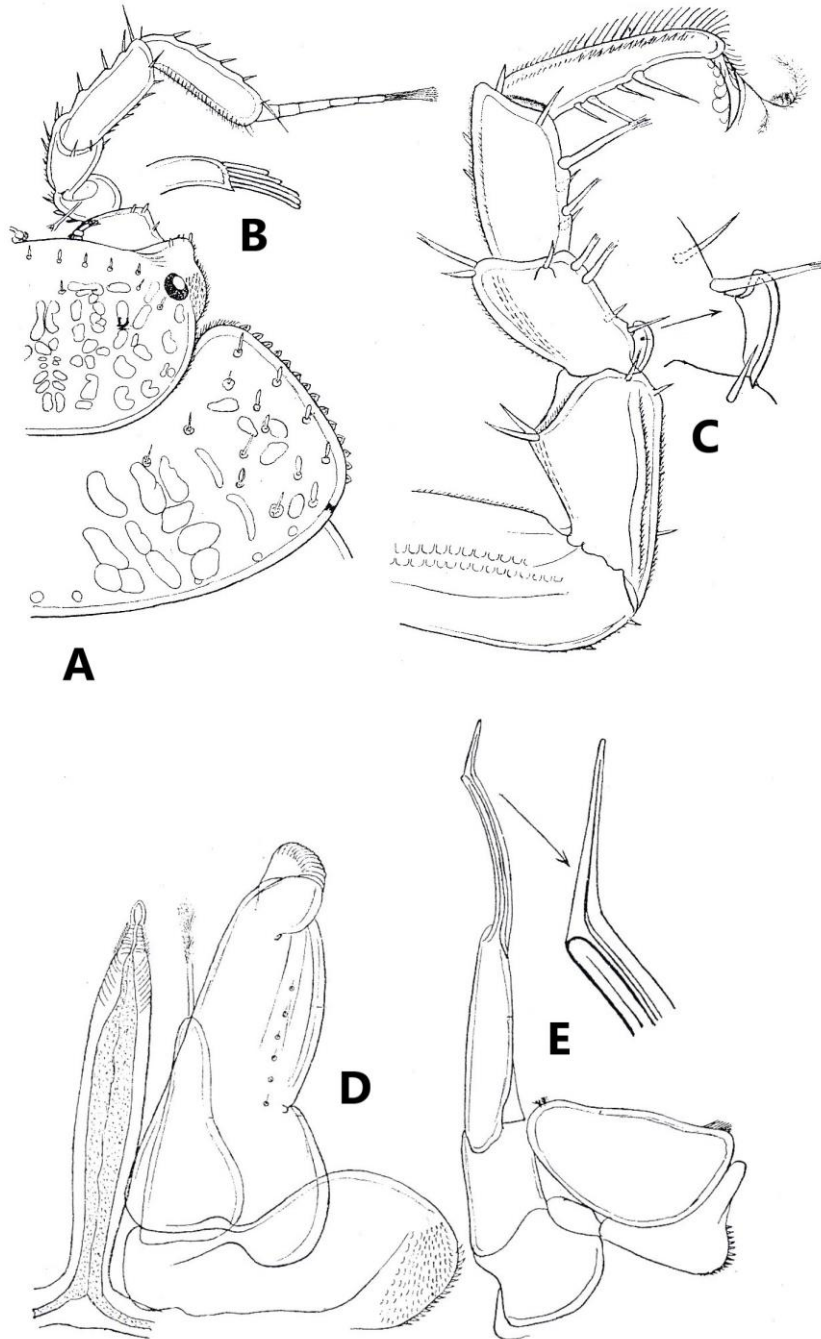


Fig. 4. *Hyloniscus motasi*: A: Dorsal side of anterior part of the body; B: Antennula; C: Pereiopode VII male; D: Pleopode 1 male; E: Pleopode 2 male (after Radu, 1983).

10 (9) Endopodite of pleopode 2 male narrowing gradually, ending with a very thin flagellum (Fig. 5); body length: 3–4 mm.....
*Hyloniscus flammuloides* Tabacaru, 1972

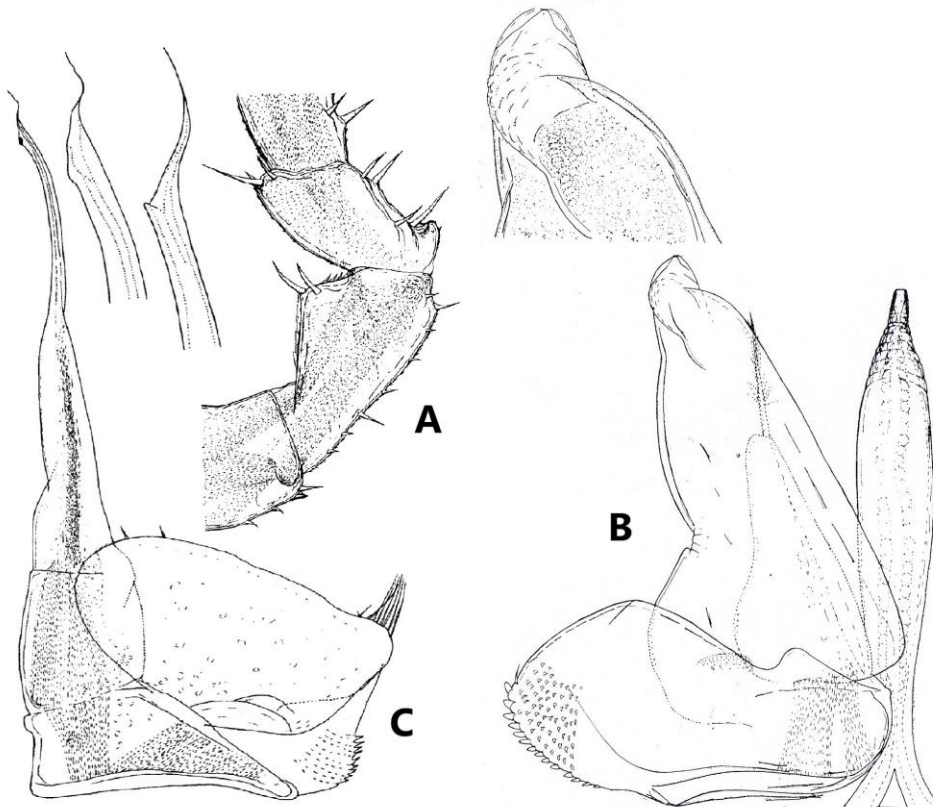


Fig. 5. *Hyloniscus flammuloides*: A: Ischion and meros of pereopode VII male;
 B: Pleopode 1 male; C: pleopode 2 male (after Tabacaru, 1972).

11 (12) End part of exopodite of pleopode 1 male strongly curved ventrally, with the tip pointing anteriorly; tip of pleopode 2 male endopodite strongly curved to the side (Fig. 6); body length: 5.5–7 mm.....*Hyloniscus mariae* Verhoeff, 1908.

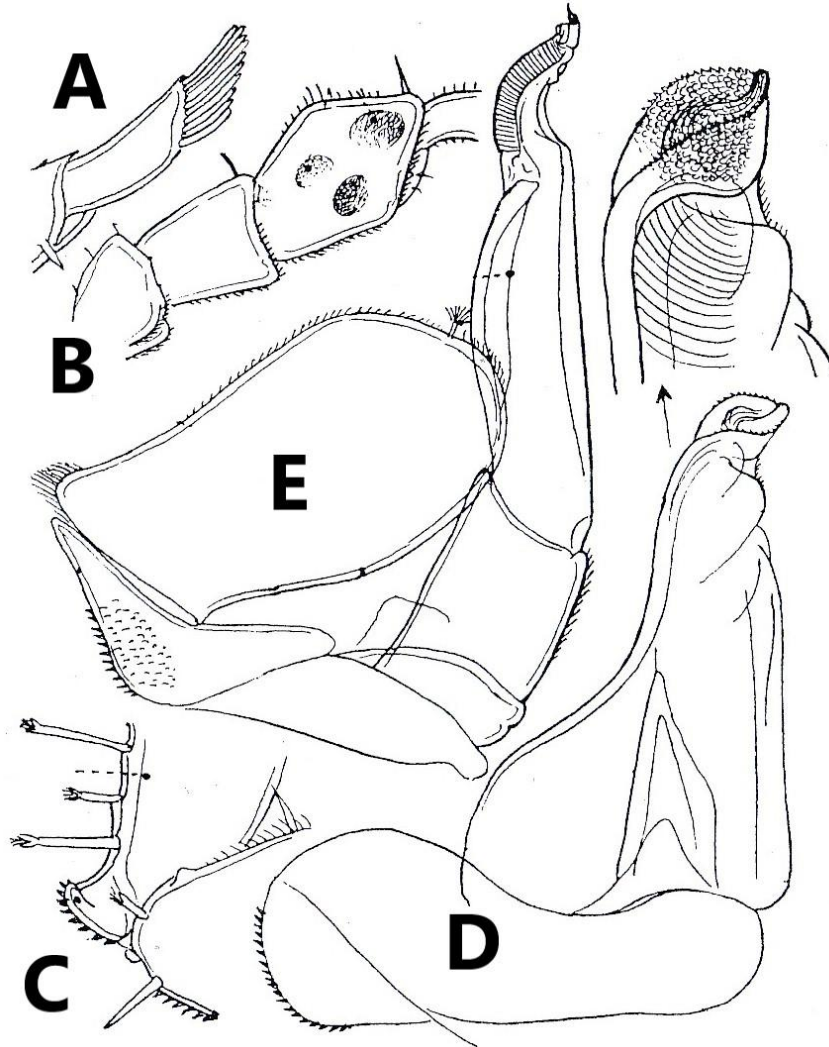


Fig. 6. *Hyloniscus mariae*: A: Antennula; B: 4th antenna article; C: meros of pereopode VII male
D: pleopode 1 male; E: pleopode 2 male (after Radu, 1983).

12 (11) End part of exopodite of pleopode 1 male not ventrally curved; tip of pleopode 2 male endopodite not curved to the side.....13

13 (14) The shaft of the 4th antenna segment with a dense hair-brush directed toward the base of the segment and partially toward the exterior while distally, there is a second, sparser hair-brush directed toward the base of the segment; five

sensory pits, two near to the basal part of the segment and three in the distal part; the spur at the base of the pereopode VII male meropodite only slightly prominent (Fig. 7 & 8); body length: 4–6 mm.....*Hyloniscus inflatus* Verhoeff, 1927

14 (13) The shaft of the 4th antenna segment is simple, without hair-brushes and presenting only two sensory pits located diagonally side by side; the spur at the base of the pereopode VII male meropodite helmet shaped, stretching over the slightly prominent base of the segment (Fig. 9); body length: 7–8 mm.....
.....*Hyloniscus siculus* Mehely, 1929

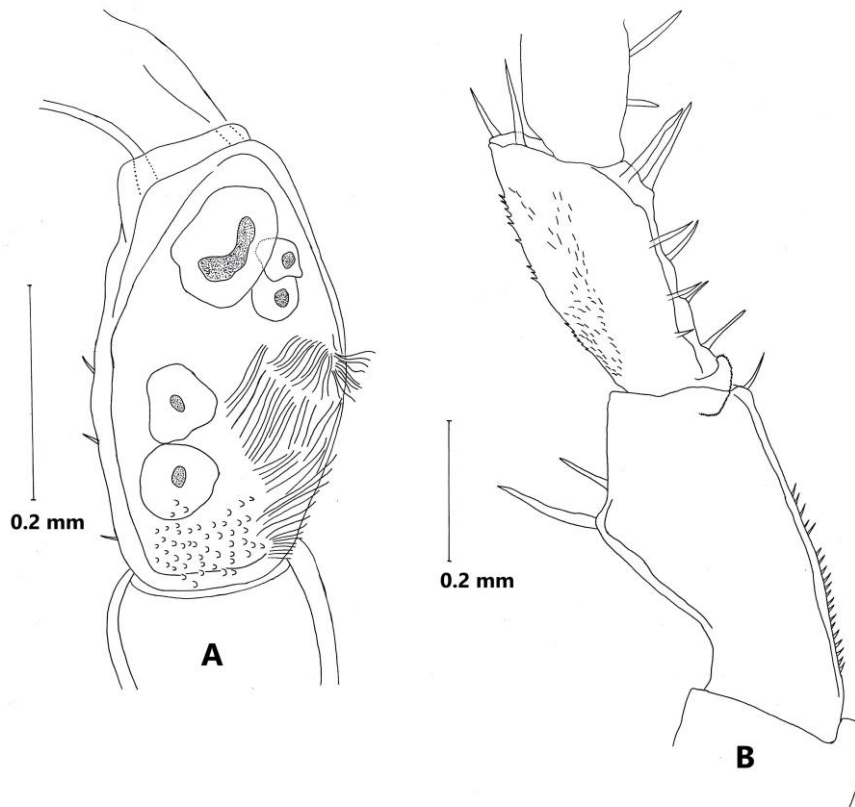


Fig. 7. *Hyloniscus inflatus*: A: 4th antenna article; B: Ischion and meros of pereopode VII male (original drawing).

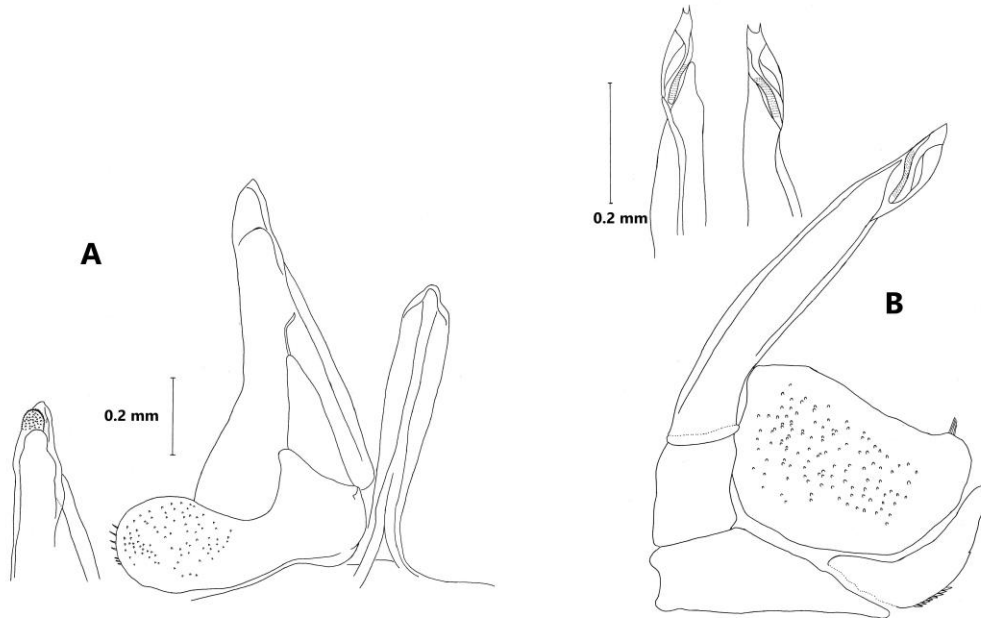


Fig. 8. *Hyloniscus inflatus*: A: Pleopode 1 male; B: pleopode 2 male (original drawing).

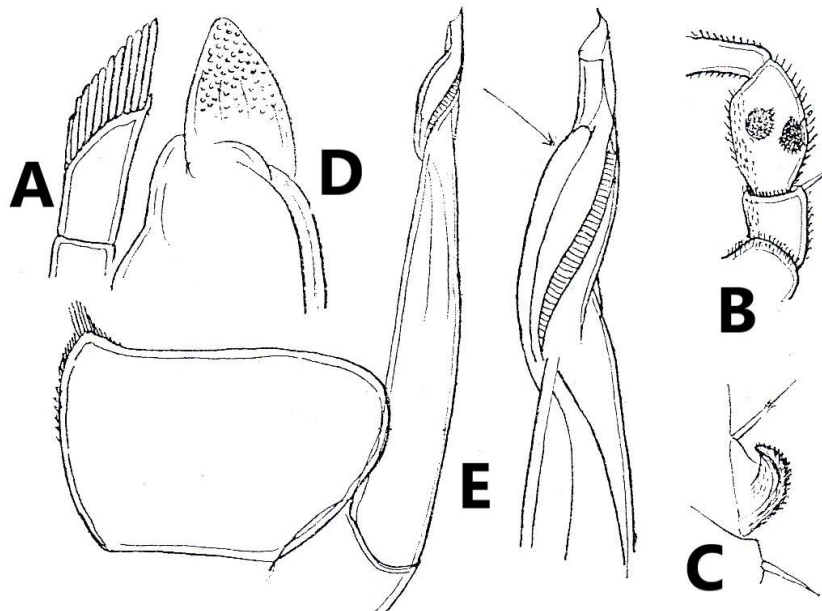


Fig. 9. *Hyloniscus siculus*: A: Antennule; B: 4th antenna article; C: spur on the meros of pereopod VII male; D: tip of pleopod 1 male exopodite; E: pleopod 2 male (after Radu, 1983).

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