Description of *Mica iberica* sp. nov. and *Porcellio cibioi* sp. nov., two new terrestrial isopods previously confused with *Porcellio ingenuus* Budde-Lund, 1885 (Isopoda: Oniscidea: Porcellionidae)

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Garcia, L. 2020. Description of *Mica iberica* sp. nov. and *Porcellio cibioi* sp. nov., two new terrestrial isopods previously confused with *Porcellio ingenuus* Budde-Lund, 1885 (Isopoda: Oniscidea: Porcellionidae). *Boll. Soc. Hist. Nat. Balears*, 63: 159-173. ISSN 0212-260X. e-ISSN 2444-8192. Palma (Illes Balears).

Two new Iberian species of terrestrial Isopods (Crustacea: Oniscidea) of the family Porcellionidae are described. The specimens come from scientific collections preserved at the Museo Nacional de Ciencias Naturales de Madrid and at the Centro Iberoamericano de la Biodiversidad of the University of Alicante (Spain). These had previously been identified as *Porcellio ingenuus* Budde-Lund, 1885, and published under that name in various scientific papers. A re-examination of these specimens and their comparison with the holotype of *P. ingenuus*, located in the Zoological Museum of the Moscow State University (Russia), has allowed them to be described as new species, assigned respectively to the genera *Mica* Budde-Lund, 1908 and *Porcellio* Latreille, 1804. *Mica iberica* sp. nov. comes from Priego (Cuenca) and is the second known species of this genus. *Porcellio cibioi* sp.nov. was collected in Salamanca and is closely related to *Porcellio scaber* Latreille, 1804. In this paper we also illustrate and describe the type-specimen of *P. ingenuus* briefly, a species described in the 19th century based on a single female specimen from Lisbon (Portugal).
***Key words**: Terrestrial isopods, taxonomy, Porcellionidae, Porcellio, Mica, new species, Iberian Peninsula.*

DESCRIPCIÓ DE *MICA IBERICA* SP. NOV. I *PORCELLIO CIBIOI* SP. NOV., DUES NOVES ESPÈCIES D'ISÒPODES TERRESTRES, PRÈVIAMENT CONFOSES AMB *PORCELLIO INGENUUS* BUDDE-LUND, 1885 (ISOPODA: ONISCIDEA: PORCELLIONIDAE). Es descriuen dues noves espècies ibèriques d'isòpodes terrestres (Crustacea: Oniscidea) de la família Porcellionidae. Els exemplars provenen de col·leccions científiques conservades al Museu Nacional de Ciències Naturals de Madrid i al Centre Iberoamericà de la Biodiversitat de la Universitat d'Alacant (Espanya). Aquests havien estat identificats anteriorment com *Porcellio ingenuus* Budde-Lund, 1885, i publicats amb aquest nom en diversos articles científics. Un reexamen d'aquests exemplars i la seva comparació amb l'holotip de *P. ingenuus*, conservat al Museu de Zoologia de la Universitat Estatal de Moscou (Rússia), ha permès descriure'ls com a noves espècies, assignades respectivament als gèneres *Mica* Budde-Lund, 1908 i *Porcellio* Latreille, 1804. *Mica iberica* sp. nov. prové de Priego (Conca) i és la segona espècie coneguda d'aquest gènere. *Porcellio cibioi* sp.nov. es va recol·lectar a Salamanca i està estretament relacionat amb *Porcellio scaber* Latreille, 1804. En aquest article també il·lustram i descrivim breument l'espècimen tipus de *P. ingenuus*, una espècie descrita al segle XIX, basada en un sol exemplar femella de Lisboa (Portugal).
***Paraules clau:** Isòpodes terrestres, taxonomia, Porcellionidae, Porcellio, Mica, noves espècies, Península Ibèrica*

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Introduction

Porcellio ingenuus Budde-Lund, 1885 is an Iberian species of terrestrial isopod (Oniscidea: Porcellionidae) described on the basis of a single female specimen, from Lisbon (Portugal). The Budde-Lund (1885) diagnosis does not allow the separation of *P. ingenuus* from other Iberian species with which it shares somatic characteristics. However, some authors have tentatively identified and reported this species on several occasions throughout the 20th and 21st centuries, identifying their specimens, with certain reservations, from the original description or subsequent papers. Jackson (1926) provides a brief description and drawings of specimens from Mont Estoril (Lisbon, Portugal) that he assigns to *P. ingenuus*, but he considers it closely related to *P. incanus*, doubting its validity. Later, Arcangeli (1935) discussed the validity of the species again and he assimilated it to *Porcellio lusitanus* Verhoeff, 1907 (= *Porcellio scaber lusitanus* Verhoeff, 1907). Vandel (1946), again with reservations, assigns several female specimens also from Portugal to *P. ingenuus* and partially illustrates some of their characteristics, concluding that they differ from the females of *P. scaber* Latreille, 1804 due to small somatic details and the shape of the first pleopods. Pollo-Zorita (1983) again identifies a series of specimens collected in Cuenca (Spain) as *P. ingenuus*, and he partially illustrates them schematically, including the first male pleopod, and discusses their differences in relation to the diagnosis provided by Budde-Lund and later descriptions by Jackson (1926) and Vandel (1946). Cifuentes (2018) studies the morphology of the same specimens from Cuenca, conserved in the collection of the National Museum of Natural Sciences of Madrid, and he illustrates the exopod of the first pleopod of the male as well as the various types of its dorsal scale-setae. Finally, Marmaneu *et al.* (2019), identify several specimens collected in Salamanca (Spain) as *P. ingenuus*, providing data on their ecology and phenology in comparison with that of *P. scaber* and other saproxylic terrestrial isopods from the same localities, illustrating both species.

Material and methods

Given the confusing and contradictory descriptions and illustrations of *P. ingenuus* which have been published, we have reviewed and compared the available specimens assigned to this species by Pollo-Zorita (1983), Cifuentes (2018) and Marmaneu *et al.* (2019). These are conserved, respectively, in the National Museum of Natural Sciences of Madrid (MNCN) and in the entomological collection of the Ibero-American Center for Biodiversity Research of the University of Alicante (CEUA-CIBIO). We have also located the type specimen, which is kept in the Zoological Museum of the Moscow State University (ZMMU), and it has been photographed for this investigation. The appendages and mouthparts of some individuals have been mounted on slides using Faure's liquid for its microscopic study and preservation. The drawings were made using a camera lucida attached to an

Olympus CH-30 optical microscope. The photographs of the MNCN material have been taken using a Dino-Lite digital microscope AM4113T. Some specimens have been photographed at the CIBIO using a Leica stereomicroscope and the images have been stacked with the Leica LAS-X software.

Results

The photographs of the type-specimen of *P. ingenuus* do not lend themselves its formal redescription, as it is a unique specimen, due to its poor state of conservation and to it being a female. But its comparison with the available specimens later attributed to this species allow these identifications to be ruled out. The re-examination of the individuals from the Museum of Madrid labelled as *P. ingenuus* and previously studied by Pollo-Zorita (1983) and Cifuentes (2018) show that they do not belong to the genus *Porcellio* and have therefore been assigned to the genus *Mica*, so we describe it as a new species. The specimens from Salamanca preserved in the Entomological Collection of the University of Alicante, and as published by Marmaneu et al. (2019) as being *P. ingenuus*, are described as a new species of *Porcellio*, very closely related to *Porcellio scaber*. Examination of the holotype does not confirm that the specimens partially illustrated by Jackson (1926) and Vandel (1946) actually correspond to this species. This would require direct study of this material, an objective that is beyond the scope of this study.

The type-specimen of *Porcellio ingenuus*

Jeppensen (2000) in her catalogue of taxa and type material described by Budde Lund, highlights that a total of ten original collections in which the Danish zoologist deposited their specimens, have not been located. Among them, he mentions the Uljanin collection, in which according to Budde-Lund (1885), the unique specimen of *Porcellio ingenuus*, a female from Lisbon (Portugal), was preserved.

However, in a previous work, Borutzky (1972) lists the type material from the Moscow University Zoological Museum, listing the types of 111 species described by G. Budde-Lund, V. N. Uljanin, A.N. Kortshagin and E. V. Borutzky; among these, *Porcellio ingenus* (sic). According Borutzky (1972) some materials from the Moscow museum, which were collected in different parts of the world, were sent by V. N. Uljanin to G. Budde-Lund and his diagnoses, marked as "in Mus. Uljanini", appear in his monograph of 1885 (Budde-Lund, 1885).

The type-specimen (Fig. 1 A) has been found in this collection. It is a damaged female: it has lost the uropods and the left antenna, and the integument has been altered by its long term preservation in ethanol. The sample is accompanied by three labels, one of them is original and the other two were added later.

In the original label, presumably handwritten by Budde-Lund, "*Porcellio ingenuus* sp. nov. / Lisbonne / B.L. det." is written in India ink on white paper. The second label is the museum label, handwritten in India ink on white paper, and it reads: "MS / *Porcellio ingenuus* Budde-Lund, 1885 / Holotip ♀ / Nº = 268". This inscription corresponds exactly to the one published by Borutzky, but with the specific name already corrected and with its original spelling (the acronym 'MS' and the word 'Holotip' are written in cyrillic characters). A third label indicates only the museum's internal acronym (in cyrillic) and the collection's registration number: "MS 268".

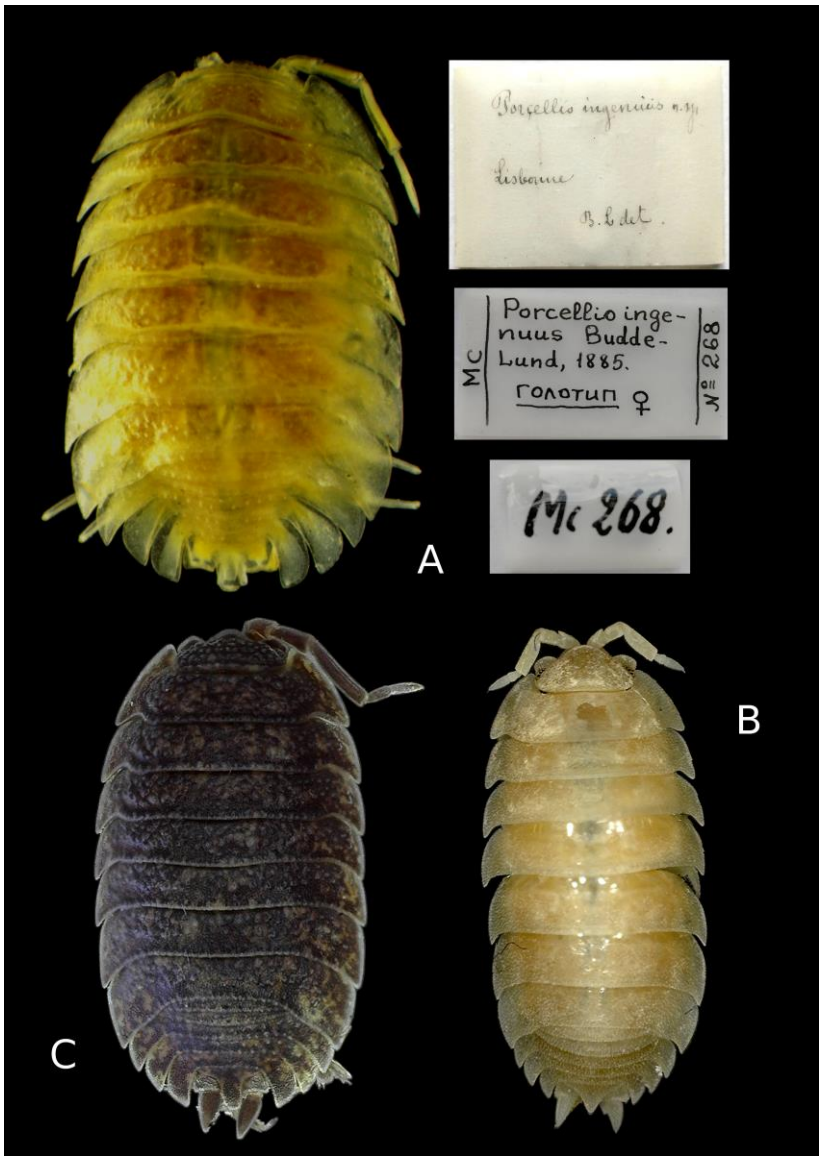

Fig. 1. A. *Porcellio ingenuus*. Female holotype. Habitus and collection labels (ZMMU - MS 268. Original photograph by Konstantin Gongalsky). B. *Mica iberica* sp. nov. Female paratype (specimen later dissected and divided into nine slides; MNCN 20.04/13807a-i). C. *Porcellio cibioi* sp. nov. Female paratype (CLLG ex coll. CEUA).

Fig. 1. *A.* Porcellio ingenuus. *Holotip femella. Habitus i etiquetes de la col·lecció (ZMMU - MS 268. Fotografia original realitzada per Konstantin Gongalsky). B.* Mica iberica *sp. nov. Paratip femella (espècimen posteriorment disseccionat i dividit en nou preparacions; MNCN 20.04/13807a-i). C.* Porcellio cibioi *sp. nov. Paratip femella (CLLG ex coll CEUA).*

Although Budde-Lund (1885) did not designate any type for *Porcellio ingenuus*, according to Art. 73.1.2 of the International Code of Zoological Nomenclature, this unique specimen must be considered the holotype fixed by monotypy (Borutzky, 1972; Jeppensen, 2000).

Taxonomy

Family Porcellionidae Brandt, 1831
Genus *Mica* Budde-Lund, 1908
Diagnosis: Caruso & Di Maio, 1996

Emended diagnosis: To the characters defined by Caruso & Di Maio (1996), it must be added that the shape of the body of the species of the genus *Mica* can also be convex and that the coxal plates 2-4 have lateral processes.

Type species: *Porcellio tardus* Budde-Lund, 1885

Mica iberica sp. nov.
Fig. 1B; figs. 3-4
http://zoobank.org/urn:lsid:zoobank.org:act:4074D535-6661-4D49-A5BD-4C75CB37FAEB
Porcellio ingenuus, Pollo, 1983: 175-182, figs. 78-79. Cifuentes, 2018: figs. 2 (*P. ingenuus*) and 3 (*P. ingenuus*).

Etymology. Derived from the Iberian peninsula.

Examined material. **Holotype**. SPAIN. **Cuenca**. 1 ♂ (6,8 mm); Priego; 10 Oct. 1979; A.M. Pollo leg.; MNCN20.04/13801. **Paratypes**. SPAIN. **Cuenca**. 6 ♂ (one of them dissected, divided into a vial and three slides) MNCN 20.04/13802 (and 20.04/13802a, 20.04/13802b, 20.04/13802c), 20.04/13803, 20.04/13804, 20.04/13805 and 20.04/13806; same data as Holotype. 6 ♀ (one of them dissected and divided into nine slides) MNCN 20.04/13807a, 20.04/13807b, 20.04/13807c, 20.04/13807d, 20.04/13807e, 20.04/13807f, 20.04/13807g, 20.04/13807h, 20.04/13807i and MNCN 20.04/13808, 20.04/13809, 20.04/13810, 20.04/13811 and 20.04/13812; same data as Holotype.

Diagnosis

A *Mica* species characterized by: convex body and cephalon with a broadly rounded central lobe; exopod of male pleopod 1 with broad, truncate and short, posterior lobe.

Description

Maximum size observed: male 7 mm; female 7.3 mm. Body (Fig. 1 B) convex; tergites smooth, covered with erect petal-shaped scale-setae (Fig. 2 A). Colour: the examined specimens are completely depigmented due to the permanence in ethanol. According to Pollo-Zorita (1983), live specimens are dark brown, with irregularly distributed yellowish spots and a darker central longitudinal stripe; a light brown band separates the epimera from tergites. Glandular fields very small, on the lateral border; containing 2-4 pores, invisible in some tergites. Noduli laterales situated far from the lateral margin, near the posterior margin (Fig. 2 E).

Cephalon without supra-antennal line, with a wide rounded central lobe, raised upwards, occupying the entire frontal area between lateral lobes; lateral lobes, protruding less than central, with straight outer margin and rounded upper edge until they join the central lobe. Eyes small, formed by 7-8 ommatidia. Pereon-tergites 1-2 sunken at the base of the epimera; tergites 3-7 with straight hind margin, concave at sides; posterior tips of epimera 1-3 rounded, progressively more pointed in tergites 4-7, directed backwards; lateral processes of coxal plates 2-4, short and flattened. Pleon directly continuing the pereon outline; pleon epimera with the posterior tips directed backwards; those of pleonite 5 do not exceed the pleotelson apex.

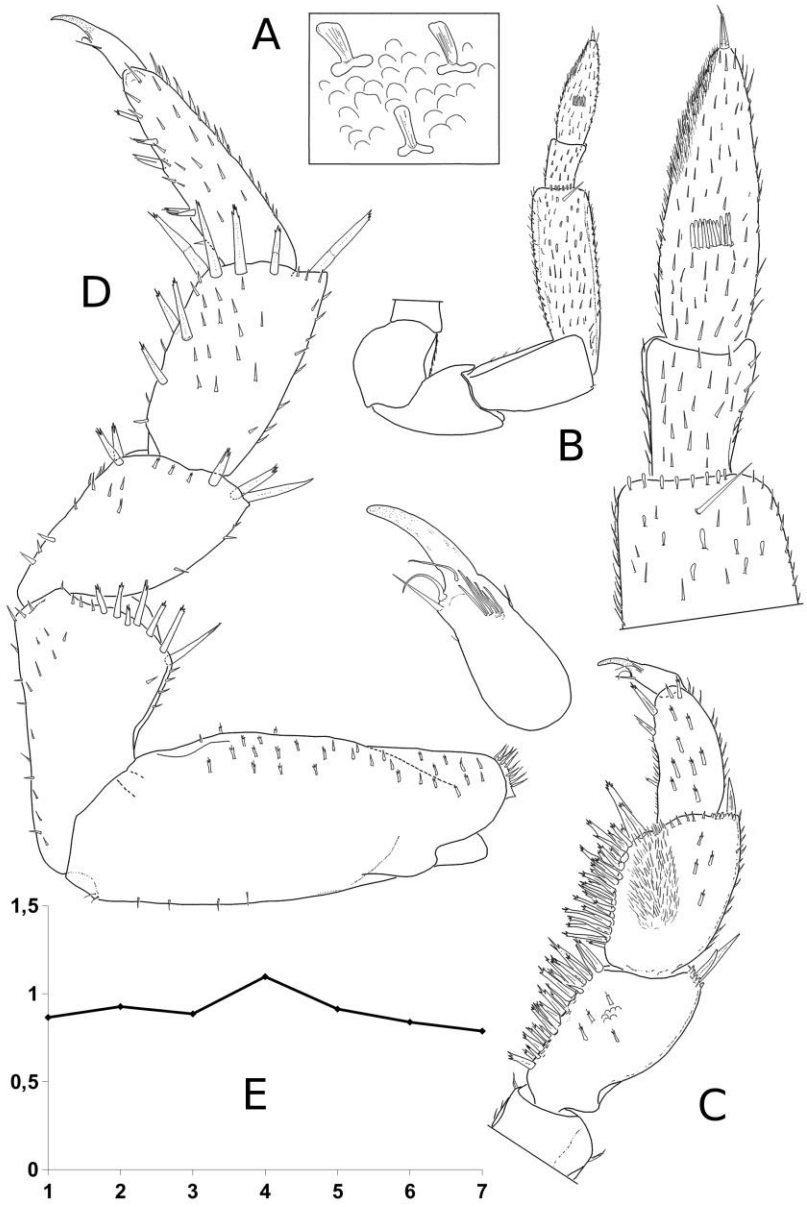

Fig. 2. *Mica iberica* sp. nov. A-B. Female paratype: A. Scale-setae of the first pereon-tergite. B. Antenna. C-D. Male paratype: C. Pereopod 1; detail of dactylus. D. Pereopod 7. E. Noduli laterales.
Fig. 2. Mica iberica *sp. nov. A-B, Paratip femella. A. Seda-escates i escates del primer pereonit. B. Antena. C-D. Paratip mascle. C. Pereopodi 1; detall del dàctil. D. Pereopodi 7. E. Noduli laterales.*

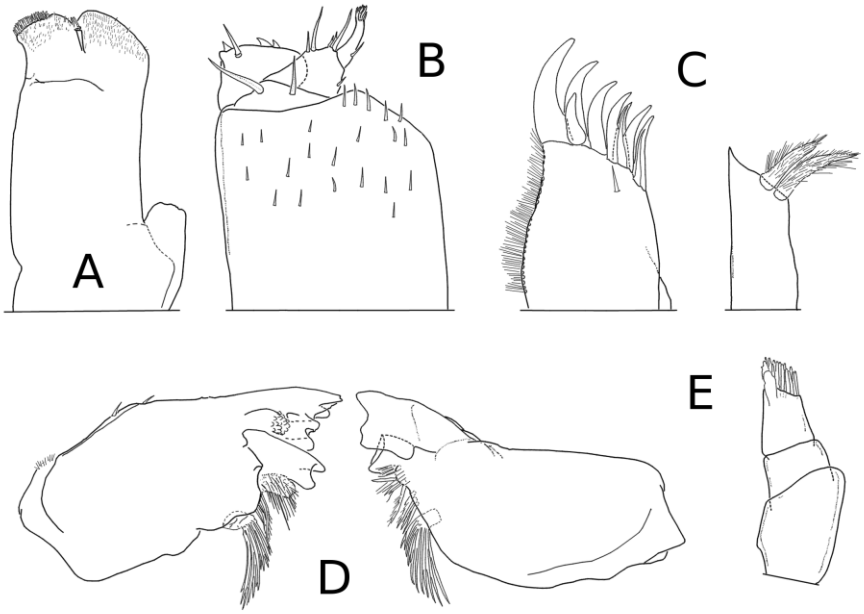

Fig. 3. *Mica iberica* sp. nov. Female paratype. A. Maxilla. B. Maxilliped. C. Maxillule (inner and outer branches). D. Mandibles. E Antennule.
Fig. 3. Mica iberica *sp. nov. Paratip femella. A. Maxil·la. B. Maxil·lípede. C. Maxíl·lula (branques interna i externa). D. Mandíbules. E. Antènula.*

Pleotelson triangular, with concave sides; the tip extends well beyond the posterior border of the uropod protopods. Uropods: protopod with straight hind margin; exopods short, without noticeable sexual dimorphism.First antenna (Fig. 3 E) with first article (basal) equal to 2+3; about 12 apical aesthetascs and sub-apical elongate lobe. Second antenna (Fig. 2 B) short, not reaching the posterior margin of pereon-tergite 1; fifth article of peduncle twice as long as flagellum; flagellum with basal article less than half the distal (1:2,4); distal article of flagellum with a single transverse row of about 10 aesthetascs and a brush of fine bristles.

Mouthparts without particular characteristics, as in Fig. 3 A-D.

Male: Pereopod 1 (Fig. 2 C) merus and carpus with dense ventral brushes of fringed setae; Pereopods 2-6 without modifications. Pereopod 7 (Fig. 2 D) ischium with straight ventral margin and excaved area in frontal face.

Pleopod 1 (Fig. 4 A): exopod with truncate distal margin, straight; inner margin with 10-12 fringed setae; respiratory field without indentation; endopod twice longer than exopod; apex with distal rounded lobe and minute hairs. Pleopod 2 (Fig. 4 B): exopod triangular with straight inner margin; outer margin with 11-14 setae; respiratory field without

indentation; endopod 1,4 times longer than exopod. Genital papilla as in Fig. 4 C.

Remarks

The assignment of these specimens to the genus *Mica* is justified by their having the following characteristics: small size, integument covered with petal-shaped scale-setae; small noduli laterales situated far from the lateral margin; reduced glandular fields; small eyes formed of few ommatidia; cephalon with well-developed lobes, the central one large, broadly rounded and raised upwards; the laterals rounded on the inner margin; hind margin of the first pereon-tergite markedly sunken on each side; telson triangular without distinct base; respiratory fields of the exopodites of male pleopods 1 and 2 without indentation.

According to Caruso & Di Maio (1996), *Mica* differs from *Agabiformius* Verhoeff, 1908 and *Leptotrichus* Budde-Lund, 1885, among other characteristics, by the shape of the first tergite, with wide concavities at the base of the epimera and by having a flattened instead of convex body. This last feature is based solely on *M. tardus* (Budde-Lund, 1885), until now the only known species of the genus, something which must be amended. However, the existence of coxal processes, present in *M. iberica*, has not been checking in *M. tardus*. The genera *Porcellionides* Miers, 1878, *Agabiformius* and *Acaeroplastes* Verhoeff, 1918 lack coxal processes, and they are present in *Porcellio* (Schmidt, 2003). The individuals previously studied were erroneously assigned to *P. ingenuus* (Pollo-Zorita,

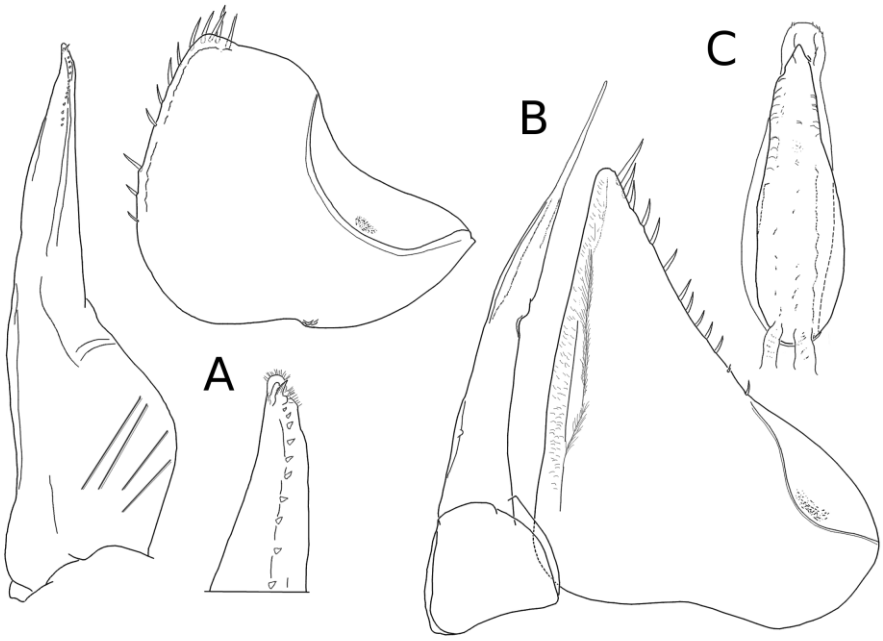

Fig. 4. *Mica iberica* sp. nov. Male paratype. A. First pleopod: exopod, endopod and apical part of the endopod (ventral). Second pleopod (ventral). C. Genital papilla.
Fig. 4. Mica iberica *sp. nov. Paratip mascle. A. primer pleopodi: exopodit; endopodit i extrem aplical de l'endopodit (ventral). B. Segon pleopodi (ventral). C. Apòfisi genital.*

1983), although his determination was not based on the type examination but on previous papers that were also a tentative identification due to the inaccuracy of the original diagnosis.

M. iberica sp. nov. differs from *M. tardus* by the convex instead of flattened body, the larger and more rounded central lobe of the head, and the shape of the exopod of the first male pleopod, since in the new species the posterior lobe is short and wide, instead of long and narrow as in *M. tardus*.

The new species is clearly distinguished from *P. ingenuus* and from other *Porcellio* species by the combination of diagnostic characteristics of the genus *Mica* defined by Caruso & Di Maio (1996) and the emended dignosis in the present paper.

Genus *Porcellio* Latreille, 1804
Diagnosis: Gruner, 1966
Type species: *Porcellio scaber* Latreille, 1804

Porcellio cibioi sp. nov.
Fig. 1 C; figs. 5-8
http://zoobank.org/urn:lsid:zoobank.org:act:5095F40D-1608-470F-B64D-CCF2816F657E
Porcellio ingenuus, Marmaneu et al. 2019: 275, Fig. 3-B.

Etymology. Derived from CIBIO, the acronym in Spanish of the Centro Iberoamericano de la Biodiversidad of the Alicante University (Spain), collectors of this new species.

Examined material. **Holotype**. SPAIN, SALAMANCA. 1 ♂ (9'7 mm); **Lagunilla**, Cerro Bajo; 5 Jun. 2017; J. Marmaneu and E. Micó leg.; CEUA00107277. **Paratypes**. SPAIN, SALAMANCA. 6 ♂, 5 ♀; **Posadillas**, El Sahugo; 2 May 2017; J. Marmaneu and E. Micó leg.; CEUA00107263, 00107264, 00107266, 00107267, 00107268, 00107269, 00107270, 00107271, 00107272, 00107273 and 00107274. 1 ♂, 1 ♀; **Villarejo**; 5 Jun. 2017; J. Marmaneu and E. Micó leg. CEUA00107261 and 00107262. 1 ♀; same locality; 4 Jul 2017; J. Marmaneu and E. Micó leg. CEUA00107260. 1 ♂; same locality; 1 Aug. 2017; J. Marmaneu and E. Micó leg. CEUA00107275. 1 ♂ (divided into nine microscope slides), 1 ♀; **La Bastida**; 9 May.

Fig. 5. *Porcellio cibioi* sp. nov. A-E. Paratypes. Habitus and variability of male and female specimens (Original photographs by Cinta Quirce, CEUA-CIBIO)
Fig. 5. Porcellio cibioi *sp. nov. A-E. Paratips. Habitus i variabilitat d'exemplars femelles i mascles. (Fotografies originals de Cinta Quirce, CEUA-CIBIO).*

2017; J. Marmaneu and E. Micó leg.; ex coll. CEUA, preserved in the Lluc Garcia personal collection.

Non type material. SPAIN, Salamanca. **Cerro Bajo**; 6 Nov. 2017; 1 ♂. **La Bastida**; 4 Jul. 2017; 1 ♀. Same locality; 2 May 2017; 3 ♀. Same locality; 2 May 2017; 3 ♀. Same locality; 4 Sep. 2017; 1 ♀. Same locality; 22 Nov. 2017; 1 ♀. **Villarejo**; 6 Nov. 2017; 1 ♀. Same locality; 2 May. 2017; 4 ♂, 1 ♀. Same locality; 14 Apr. 2018; 1 ♀. Same locality; 17 Apr. 2018; 2 ♀. Same locality; 11 Dec. 2017; 2 ♀. **Posadillas**, El Sahugo; 2 May. 2017; 1 ♂, 3 ♀. Same locality; 2 May. 2017; 3 ♀. Same locality; 17 Apr. 2018; 1 ♀. **Montegordo**; 5 Jun. 2017; 1 ♂. All collected by J. Marmaneu and E. Micó and preserved in the CEUA.

Diagnosis

A *Porcellio* species with a granulated, broad and convex body. Cephalon with rounded central lobe and without distinct frontal tubercle. Antennae short, not reaching the hind margin of the second pereon tergite; fourth peduncular article widened distally; basal flagellar article shorter than distal (1:1,86). Glandular fields circular, close to the margin. Scale-setae short, tricorn-type, with rounded apex. Pleotelson short with distal part subtriangular and broad rounded apex. Exopodites of the first two male pleopods with notched tracheal field.

Description

Maximum size observed: male 9.7 mm; female 10 mm. Body convex; habitus and outline as in Figs. 1 B and 5 A-D. Colour: male darker than female, uniform dark grey, with slightly lighter margins of epimera; females more or less mottled, with yellow spots; ventral parts dark in both sexes. Dorsum granulated: 5 rows of tubercles on the cephalon and tergite 1; 4 rows in tergites 2-4 and 2 rows of granulations in the anterior half of the last three tergites; a transversal row of granulations on the hind margin of each pereon tergite; pleon tergites with a row of granules on the posterior margin. Tegumentary scales with irregular outline; scale-setae tricorn type, with rounded tip. Small, circular, glandular fields, very close to margin but clearly separated; fields containing 5-8 pores. Small noduli laterales, not noticeable on whole animal, closer to posterior edge than to lateral one.

Cephalon without supra-antennal line; central lobe broadly rounded and raised upwards; lateral lobes rectangular with rounded anterior corners and oblique upper edge; front longitudinally fairing, without distinct tubercle. Eyes with about 20 ommatidia. Pereon-tergites 1-3 deeply sunk at the base of the epimera; 4-6 with regularly concave hind margin; tergite 7 wider and sinuous on each side; posterior tips of epimera rounded, directed backwards. Pleon directly continuing the pereon outline; pleon epimera with posterior angles directed backward. Pleotelson short; distal part broad, subtriangular, with sloping sides and broad rounded tip; tip extends beyond uropod protopod posterior margin. Uropods: protopod short with straight hind margin; exopods short in both sexes.

First antenna: article 1 (basal) slightly shorter than 2+3; distal article with approximately 12 aesthetascs and rectangular lobe. Second antenna short, not reaching the posterior margin of pereon-terguite 2; teeth of peduncle poorly developed; fourth peduncular article widened infero-distally; fifth article of peduncle 1.3 times longer than flagellum; flagellum with basal article distinctly shorter than distal (1:1,86).

Mouthparts without special features, as in Fig. 7 A-D.

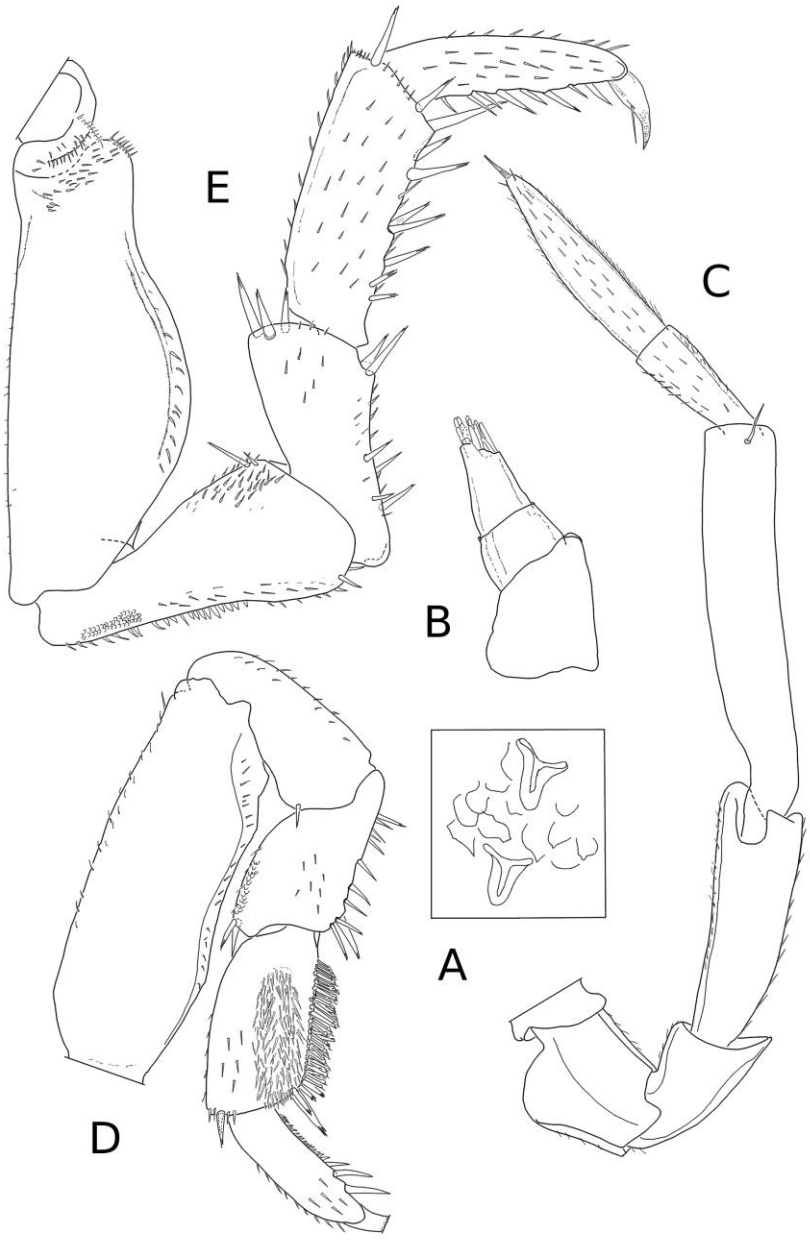

Fig. 6. *Porcellio cibioi* sp. nov. Male paratype. A. Scale-setae of the first pereon-tergite. B. Antennule. C. Antenna. D. First pereopod. E. Seventh pereopod.
Fig. 6. Porcellio cibioi *sp. nov. Paratip mascle. A. Seda-escates de primer pereonit. B. Antènula. C. Antena. D. Primer pereopodi. E. Setè pereopodi.*

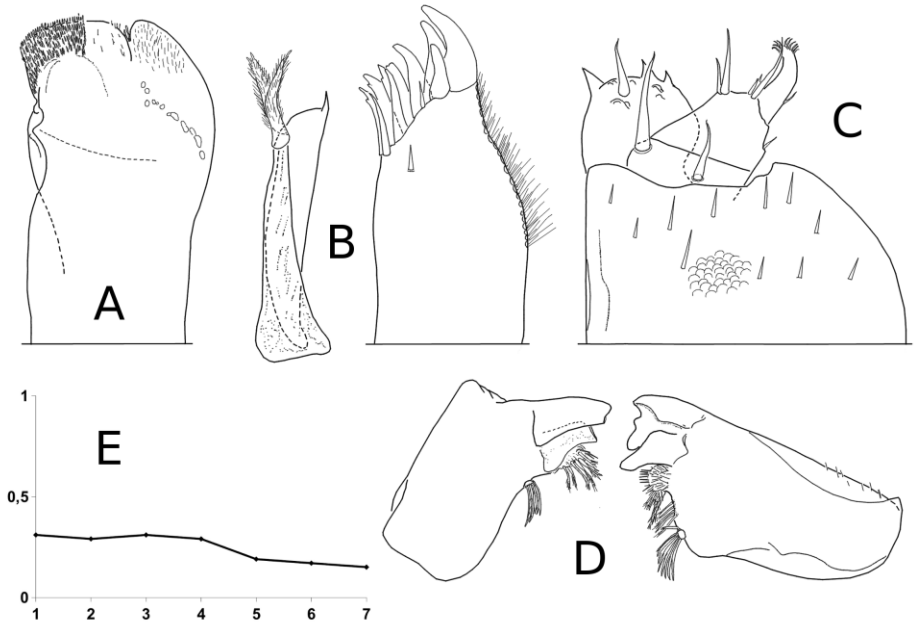

Fig. 7. *Porcellio cibioi* sp. nov. Female paratype. A. Maxilla. B. Maxillule (inner and outer branches). C. Maxilliped. D. Mandibles. E. Noduli laterales.
Fig. 7. Porcellio cibioi *sp. nov. Paratip femella. A. Maxil·la. B. Maxíl·lula (branques interna i externa). C. Maxil·lípede. D. Mandíbules. E. Noduli laterales.*

Male: Pereopod 1 (Fig. 6 D): carpus with a dense ventral brush of setae; ventral margin of propodus with spinose area reaching ¾ of total length and three strong setae. Pereopods 2-6 without modifications. Pereopod 7 (Fig. 6 E): ventral margin of ischium and merus slightly concave; setose area in frontal face of ischium.

Pleopod 1 (Fig. 8 A) exopod with notched respiratory field; posterior lobe truncated with slightly indented margin; inner margin with 8-10 strong setae. Endopod twice longer than exopod; apex with a rounded lobe and ventrally spinulated. Pleopod 2 (Fig. 8 B) exopod triangular, with notched respiratory field and straight inner margin; endopod slightly longer than exopod. Genital papilla as in Fig. 8 C.

Remarks

P. cibioi, sp. nov. is close related to *P. scaber* but it is clearly distinguished from this species by constant characteristics, i.e.: the shape of the body, which is broader and convex; the broadly rounded shape of the central lobe of the head and the lateral lobes; the shape of pleotelson, always with the posterior tip broad and rounded (this character is maintained in 97.2% of the studied specimens) and by shorter and thicker antennae. The most significant morphological difference between *P. cibioi*. sp. nov. and *P. scaber* is the arrangement

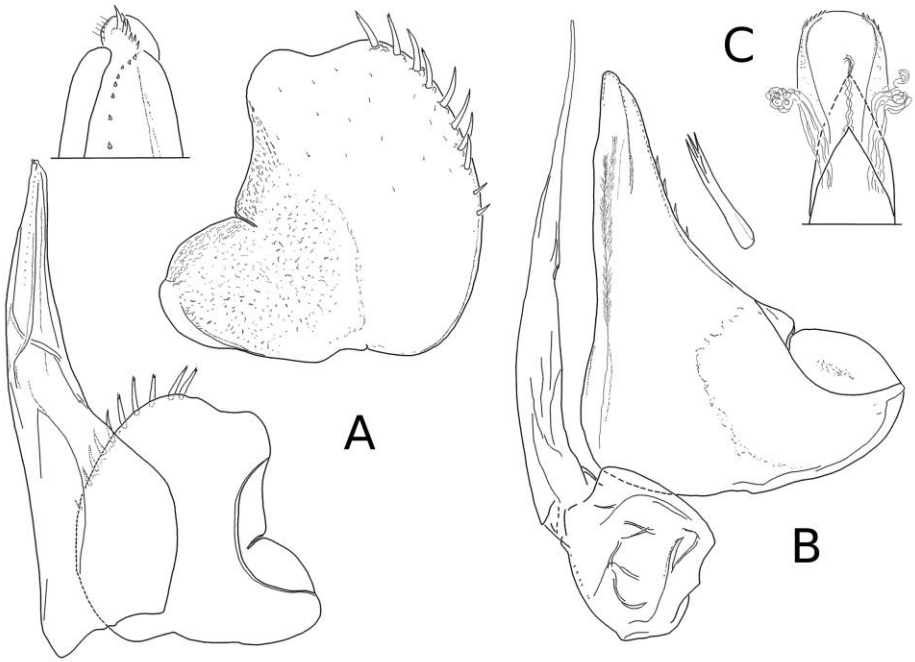

Fig. 8. *Porcellio cibioi* sp. nov. Male paratype. A. First pleopod (ventral; exopod frontal and apical part of endopod, ventral). B. Second pleopod (ventral). C. Genital papilla.
Fig. 8. Porcellio cibioi *sp. nov. Paratip mascle. A. Primer pleopodi (ventral; exopodit frontal i part apical de l'endopodit ventral). B. Segon pleopodi (ventral). C. Apòfisi genital.*

and structure of the glandular fields; in *P. scaber* they are elliptical, longer than wide, and are part of the lateral margin that widens to encompass the pore area; in *P. cibioi* sp. nov. the fields are circular and close to the margin but clearly separated, especially in tergites 2-7. The relative position of the noduli laterales is also distinct in the two species. However, the examination of the sexual characteristics of both species does not reveal notable differences, except in the structure of the apical end of the endopod of the male first pleopod: in *P. cibioi* sp. nov. the tip of the endopod is straight with a rounded distal lobe (frontal) and strong spines (ventral); in *P. scaber* the apex of the endopod is beak-shaped, curved outward, with little spines in the ventral part (compare this paper Fig. 8 A and Gruner [1966] Fig. 202 C). The exopod of the first pleopod is almost identical to that of *P. scaber*, but has the posterior lobe with the internal angle more prominent than the external angle, while in *P. scaber* and other species of the same group the external angle usually exceeds the internal one (see Vandel, 1962; Gruner, 1966; Cifuentes, 2018). In addition to these morphological differences, *P. cibioi* sp. nov. coexists with *P. scaber* in the same collecting sites but occupying clearly different ecological niches and showing a distinct phenology, as has been verified in the field study (Marmaneu *et al.*, 2019).

P. cibioi sp. nov. is distinguished from the type of *P. ingenuu*s by the shape of the

first three pereonites, with the base of the epimera widely sunken in the new species and barely sinuous in *P. ingenuus*; due to the shape of the antenna, which in *P. ingenuus* presents the first flagellar article stem longer than the second and the fourth peduncular article less widened distally, and also by the shape of the epimera and neopleura, being more developed in *P. ingenuus* than in *P. cibioi*.

Due to its set of morphological characteristics, it is also different from the other *Porcellio* species recorded in the Iberian Peninsula.

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