

The family Nicoletiidae in the Canary Islands, with description of new taxa (Insecta: Zygentoma)

RAFAEL MOLERO BALTANÁS¹, MIQUEL GAJU RICART¹, NÉSTOR LÓPEZ DOS SANTOS², PEDRO OROMÍ³
and CARMEN BACH DE ROCA⁴

¹Departamento de Zoología, Universidad de Córdoba, Edificio C-1 (C. Darwin), Campus de Rabanales, 14071 Córdoba, Spain;
e-mails: balmobar@uco.es; balgarim@uco.es

²C/Portugal 74 1ºG, 35010 Las Palmas de Gran Canaria, Spain; e-mail: nlopez@cifor.net

³Departamento de Biología Animal, Universidad de La Laguna, 38205 La Laguna, Tenerife, Islas Canarias, Spain;
e-mail: poromi@ull.es

⁴Departamento de Biología Animal, Biología Vegetal y Ecología, Universidad Autónoma de Barcelona, 08193 Bellaterra, Barcelona, Spain; e-mail: Carmen.Bach@uab.es

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Abstract. The knowledge of the family Nicoletiidae in the Canary Islands was limited to two reports of *Proatelurina pseudolepisma* (Grassi, 1887), a species which belongs to the subfamily Atelurinae. This study provides new data on the occurrence of representatives of Nicoletiidae on these islands and descriptions of two endemic troglobic taxa: *Canariletia holosterna* gen. n. et sp. n., from the island of Gran Canaria, and *Coletinia majorensis* sp. n., found in Fuerteventura. The latter belongs to a group of species whose males have asymmetric antennae, so it is compared with those *Coletinia* of this group. *Canariletia* gen. n. shows a unique combination of characters inside Nicoletiidae, so its position within this family is discussed, considering the new genus as incertae sedis, but probably related to the Palearctic and Afrotropical genera included in the subfamily Coletiniinae sensu Mendes, 1988.

INTRODUCTION

The family Nicoletiidae includes eyeless Zygentoma (= Thysanura s. str.) living in warm regions of the world, mainly in caves and endogean environments, or associated with ants or termites. Since the revisions of Nicoletiidae made by Mendes (1988 and 2002) this family is subdivided into five subfamilies. In the Western Palearctic region only the subfamilies Coletiniinae and Atelurinae have been reported until now (the occurrence of *Nicoletia* Gervais, 1843 – subfamily Nicoletiinae – in Europe is probably due to accidental introductions).

The Zygentoma fauna of the Canary Islands is reported in several publications (Ridley, 1881; Navás, 1906; Silvestri, 1940; Wygodzinsky, 1952; Paclt, 1966; Mendes, 1982, 1993; Mendes et al., 1992, 1993; Molero et al., 1999), but only representatives of the family Lepismatidae are cited for this archipelago, with the exception of two records of the species *Proatelurina pseudolepisma* (Grassi, 1887) which was cited for Tenerife by Mendes (1993) as *Proatelura pseudolepisma*, and for La Palma by Mendes et al. (1993). This species is mainly myrmecophilous and is widespread around the Mediterranean region; probably its presence in the Canary Islands is due to an accidental introduction (as is the case for some myrmecophilous Lepismatidae such as the Mediterranean *Neoaasterolepisma wasmanni* (Moniez, 1897) that has been reported for Peru (Wygodzinsky, 1967). Many populations of *Proatelurina* are only represented by females, so they are probably parthenogenetic; the finding of only female specimens in the Canarian archipelago suggests that these insects may fol-

low this way of reproduction (Mendes et al., 1993). The genus *Proatelurina* belongs to the subfamily Atelurinae, which was considered as an independent family when *P. pseudolepisma* was cited for the Canary Islands. The status of *Proatelurina* as an independent genus was established by Paclt (1963), who separated it from the Oriental species *Proatelura jacobsoni* (Silvestri, 1911). This split has been accepted from 1993 to the present, as can be seen in the recent revision of Atelurinae by Mendes (2012).

Recently, some material of Zygentoma has been collected in caves on this archipelago, containing only samples of troglobiont Nicoletiidae from two islands: Gran Canaria (a new genus and species) and Fuerteventura (a new species of *Coletinia* Wygodzinsky, 1980). The two new taxa, described below, represent the first record of non-atelurine Nicoletiidae for the Canarian archipelago and the Macaronesian region.

MATERIAL AND METHODS

Specimens preserved in 70% ethanol were dissected and mounted in Tendeiro medium (see Molero et al., 2000) for microscopic study. Illustrations were made with the aid of a camera lucida attached to a microscope. Metric data follow the criteria given in Smith (1998). One specimen of *Canariletia* gen. n. was prepared for SEM by dehydrating it with ethanol and hexamethyldisilazane (following Ubero-Pascal et al., 2005) and coating it with gold.

The types of the new species are deposited at the following institutions: UCO – Departamento de Zoología, Universidad de Córdoba (Córdoba, Spain); DZUL – Departamento de Zoología, Universidad de La Laguna (Tenerife, Canary Islands, Spain);



Fig. 1. *Coletinia majorensis* sp. n. Photographed by P. Oromí in its natural habitat in Cueva del Llano (Fuerteventura island).

MNCN – Museo Nacional de Ciencias Naturales (Madrid, Spain); IICT – Instituto de Investigação Científica Tropical, Zoology collection curated by L. F. Mendes (Lisbon, Portugal).

RESULTS

Canariletia Molero, Gaju, López & Bach gen. n.

Type species. *Canariletia holosterna* sp. n. by present designation.

Description

Habitus as in Fig. 2; colour photographs published by M. Naranjo and P. Oromí can be seen in Naranjo et al. (2009), pages 33 and 81. Small size, length of adults up to 7.1 mm. Body shape subcylindrical, thorax nearly as wide as the abdomen, slightly detaching from abdomen base. Epidermic pigment pale yellowish; specimens preserved in alcohol become whitish. All surfaces covered with scales, except for appendages (antennae, maxillary and labial palps, terminal filaments and legs; although coxae are scaled). These scales are ovoid to subquadrangular, with convex and rounded distal margins and numerous subparallel rays (Fig. 3). Corresponding to the dense cover of scales, the body surface shows a poor setation, with the disc of the tergites and sternites almost devoid of setae.

Antennae and caudal filaments a bit shorter than body length. Antennae of males symmetric, the pedicel with an apical triangular apophysis which shows a dense field of glandular projections in its inner side (Figs 4 and 7). Antennae of females with shorter pedicel, lacking apophysis and with five long bifid macrosetae. Mandibles with well developed sclerotized teeth, a molar plate and few setae (Fig. 8). Galea with two apical sensory cones; lacinia with prosthema and a bifurcate tip (Fig. 6). Maxillary palps with 5 segments (Fig. 9), the last one with 6 apical sensory rods and subcircular sensilla. Terminal segment of the labial palps with 6 sensory papillae arranged in a subcircular group; lateral margins of this segment with some basiconic sensilla (Figs 5 and 10).

Nota with many marginal setae on lateral borders and posterolateral angles, the pronotum also bears these setae on its anterior margin. Some of them are long bifid macrosetae, the remaining are short bristles. The disc of the nota is nearly bare, with only few small setae (Fig. 11). Tarsi

4-segmented, longer than their respective tibiae (Fig. 12). Praetarsus with 3 simple claws, the median one thinner and nearly as long as the lateral ones, these with thickened bases (Fig. 14).

Urotergites with fine sutures separating their lateral portions; they are hardly visible under the cover of scales, but in a similar position to that drawn for *Coletinia* by Wygodzinsky (1980); the hind margin with setae and macrosetae irregularly arranged (Fig. 15). Urotergite X of males (Fig. 16) with a concave hind border but without prominent posterolateral lobes and devoid of sensorial pegs (these pegs are also absent in terminal filaments). This tergite has a similar shape (only slightly less concave) and setation in females, showing only a few setae and 1+1 spines on the posterior margin and lacking setae on the disc (Fig. 17).

All urosternites entire, without divisions into sternite and coxites; the first urosternite, divided in previously known Palearctic genera, is also entire in this new genus (Fig. 18). Urosternites II–IX with a pair of styli (Fig. 19). Urosternites II–VI with exsertile vesicles and VII with pseudovesicles. Coxites of male free; parameres wide, subcylindrical to ovoid and without divisions. Penis small and with longitudinal opening (Fig. 21). Subgenital plate well developed (Fig. 23). Ovipositor long, surpassing styli IX (Fig. 24). Gonapophyses IX with spinulated inner distal area (Fig. 25).

Etymology. The name *Canariletia* is based on that of the island of Gran Canaria, with the same ending as *Nicoletia*, the type genus of the family Nicoletiidae. Gender: Feminine.

Canariletia holosterna Molero, Gaju, López & Bach sp. n.

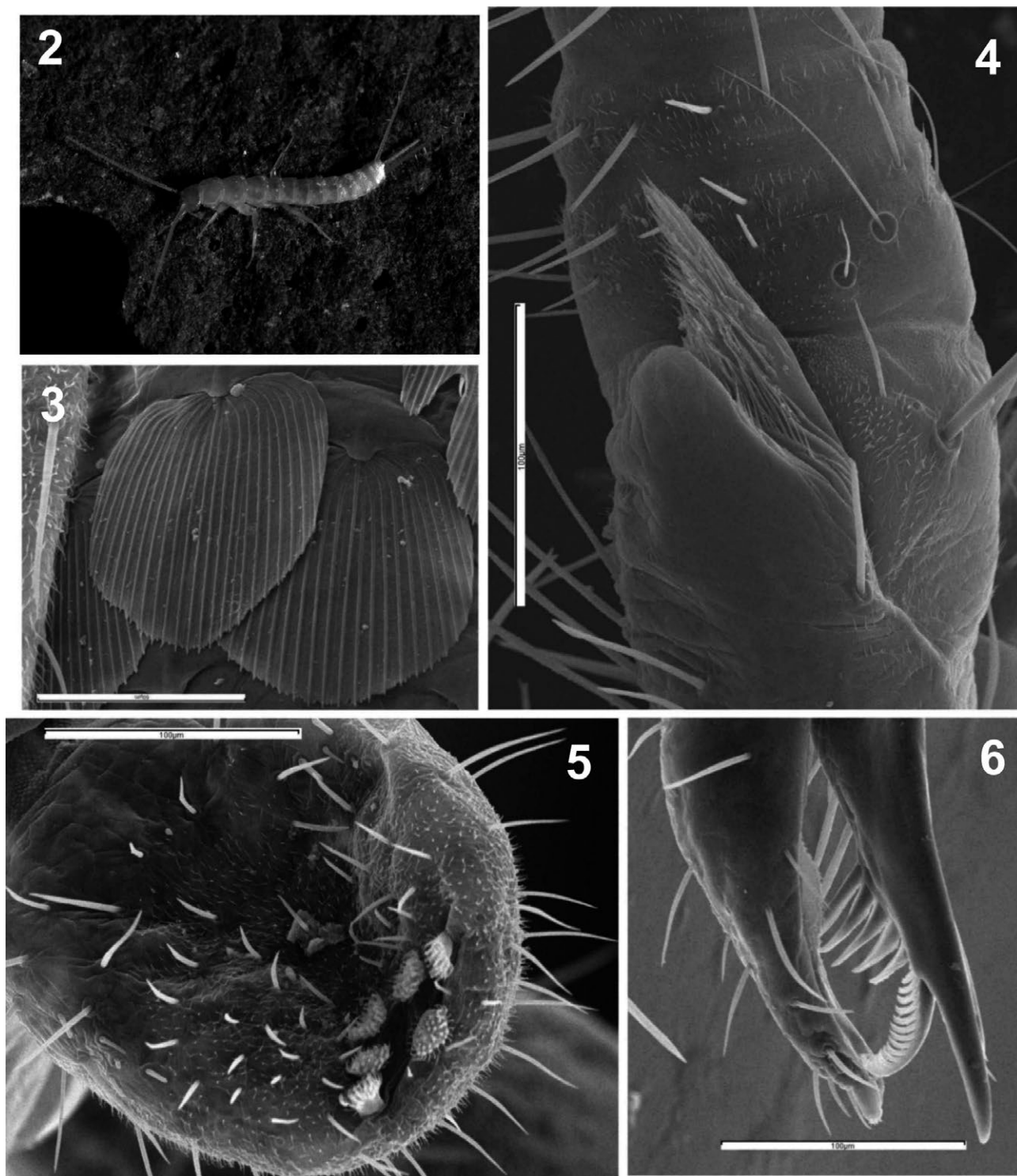
Description

Body length: 6.1 mm (holotype); up to 6.5 mm in the biggest males, up to 7.1 mm in the biggest females collected. Antenna: maximum preserved length up to 6.1 mm. Terminal filaments up to 5.1 mm (maximum preserved length, probably broken).

Epidermal pigment and scales as described for the genus. Head with very few setae: only some marginal long bifid macrosetae inserted on the ocular region and near the margin of the frons (Fig. 7). Clypeus and labrum with more abundant setation: some short macrosetae and several small setae.

Lacinia with bifurcate tip (there is a secondary subapical tooth) and, in addition to the prosthema, 4–5 hyaline lamellae and 7–9 setae (Fig. 6). Apical sensory cones of the galea equal in size or, in some specimens, one more developed than the other. Apical segment of the maxillary palp about 3 times longer than wide and 1.3–1.4 times longer than the third (Fig. 9). Apical segment of the labial palp very developed, about 1.7 times longer than wide and 1.4 times longer than the penultimate (Fig. 10). Inner side of this segment with 4–6 thin-walled basiconic sensilla; outer side with 3–6 (Figs 5 and 10).

Tibiae (Figs 12 and 13) with 1 dorsal, 1 lateral and 4 ventral spines; all tibial spines are shorter than the diameter of the article. The dorsal spine, inserted on the distal half of

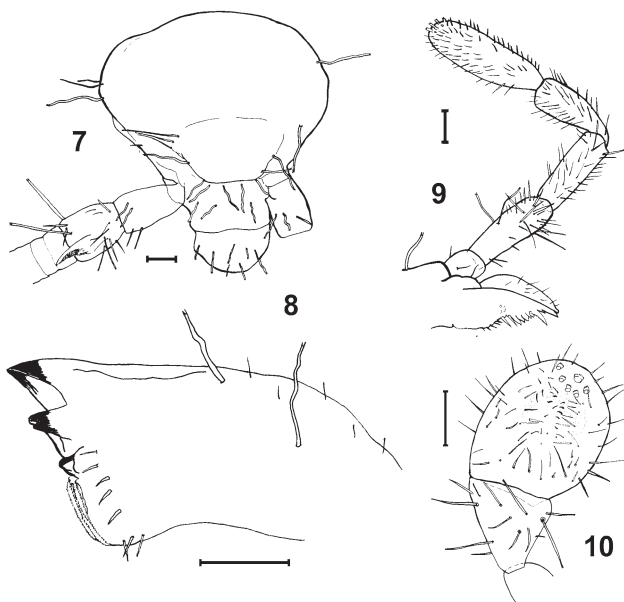


Figs 2–6. 2 – *Canariletia holosterna* gen. n. sp. n., photographed by P. Oromí; 3–6 – *Canariletia holosterna* gen. n. sp. n., SEM photographs of a male (paratype). 3 – scales; 4 – pedicellar apophysis; 5 – apical segment of labial palp; 6 – apex of galea and lacinia. Scales: 3 – 60 µm; 4–6 – 100 µm.

the tibia, is absent on metatibiae. Protibiae 3.4 times longer than wide; this ratio is about 4.3 for metatibiae.

Nota and urotergites as described for the genus, with 5–7 macrosetae on each lateral margin (more concentrated on posterolateral angles), alternating with several short bristles; the central part of the hind margin is devoid of setae (there are only 1+1 sublateral macrosetae). The pronotum has 2–4+2–4 macrosetae on its anterior margin plus sev-

eral short and thin setae. Longer macrosetae are about half the length of the notum (Fig. 11). Setation of the urotergites mainly concentrated on the posterolateral margin, the central portion of the posterior margin devoid of setae (at most, 1+1 submedian small bristles); macrosetae (4–10+4–10 on each urotergite) are irregularly arranged and their insertions alternate with short bristles (Fig. 15). Disc of urotergite X without setae in both sexes, the hind



Figs 7–10. *Canariletia holosterna* gen. n. sp. n. 7 – head setation and basal divisions of antennae of a male (paratype); 8 – mandible (paratype); 9 – maxillary palp (holotype); 10 – labial palp (holotype). Scales: 0.1 mm.

margin of this tergite slightly concave (Figs 16 and 17); the concavity is slightly more pronounced in males. Uroster-nite I entire, without visible sutures, with a slightly convex hind border (Fig. 18). Hind border of the remaining ster-nites with 1+1 submedian bifid macrosetae, 1+1 sublateral macrosetae inserted very close to the insertion of styli and in the lateral portion external to the styli, some lateral acute setae (Fig. 19). Uroster-nites II–VI with exsertile vesicles and VII with pseudovesicles; uroster-nites II–IX with sty-li. Uroster-nite VIII of the male with a nearly truncated or slightly convex and not very protruding hind border (Fig. 20). Uroster-nite IX divided in two lateral portions (coxites) by a slightly marked suture. Penis small, with longitudinal opening. Parameres subcylindrical to ovoid, about 3.5–4 times longer than wide, slightly shorter than IX styli (Fig. 21). Coxite VIII of the female as in Fig. 22. Subgenital plate subtriangular, with convex hind margin, about 0.9 times longer than wide (Fig. 23). Ovipositor long, with about 20–22 divisions (basal divisions longer than wide, distal divisions shorter), surpassing the tips of styli IX by 2–3 times their length (Fig. 24); apex as in Fig. 25.

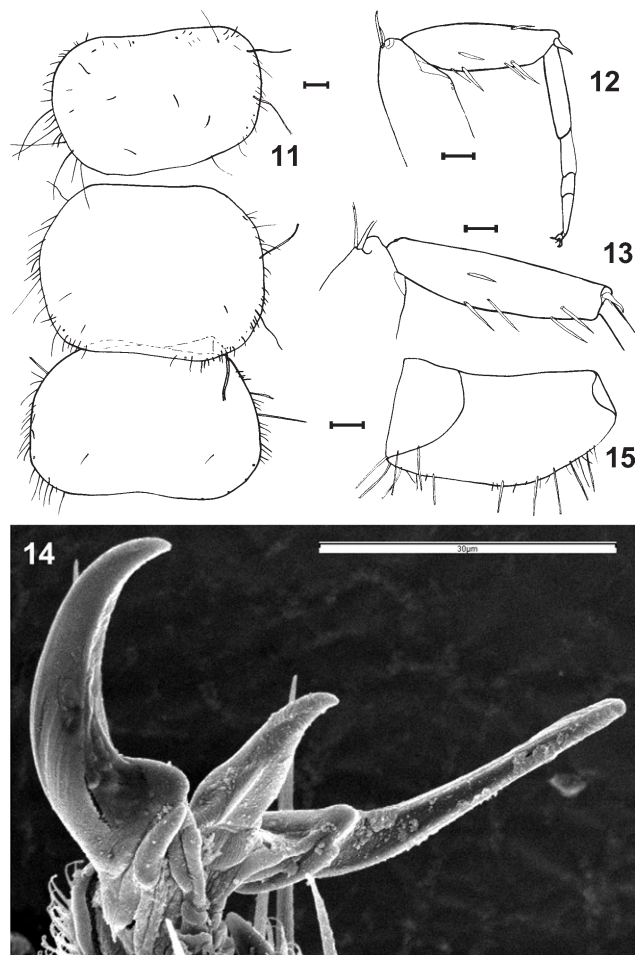
Type material. Holotype ♂, Canary Islands, Gran Canaria: Mina de los Llanetes (Valsequillo). 28R 607227 3170038. 163 m a.s.l., mounted on a slide. 10-II-2007. Data from the collector's label: TY-3829. GIET leg. Deposited in DZUL (Ref. 28501).

Paratypes (same locality and collectors):

TY-3087. 3-I-2007. 1♂ and 1♀. Deposited in UCO, Ref. Z2254.

TY-3829. 10-II-2007. 10♂ and 2♀ (2♂ on a slide and 1♂ mounted for scanning deposited in UCO Ref. Z2255, 1♂ and 1♀ deposited in MNCN (Cat. Tipos N° 2350), remaining males in alcohol deposited in DZUL Ref. 28502).

TY-3874. 1-VI-2007. 7♂ and 4♀: 3♂ and 1♀ deposited in DZUL (Ref. 28503) 2♂ and 1♀ deposited in UCO (Ref. Z2256) and 2♂ and 2♀ deposited in IICT.



Figs 11–15. *Canariletia holosterna* gen. n. sp. n. 11 – nota of the holotype; 12 – protibia and tarsus (holotype); 13 – metatibia (holotype); 14 – Pretarsal claws (SEM photograph of a paratype); 15 – urotergite V (paratype). Scales: 11–13, 15 – 0.1 mm; 14 – 30 µm.

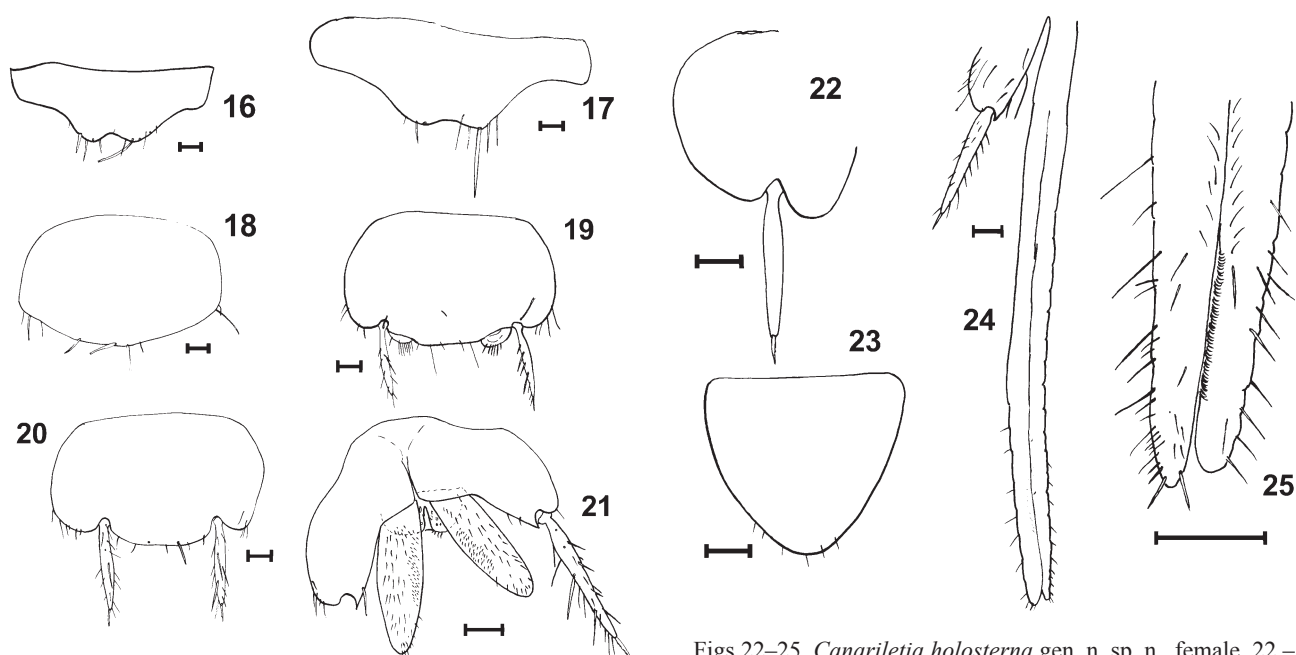
TY-3883. 6-VII-2007. 5♂ and 3♀: 2♂ and 2♀ (one of each sex dissected) deposited in UCO (Ref. Z2257); remaining specimens deposited in DZUL (Ref. 28504).

Additional material. A juvenile specimen (length: 4 mm) collected from Fuente Bebeideja (Gran Canaria), 16-V-2007, mounted on slide (TY-3862). This specimen was not included in the type series. Deposited in UCO, Ref. Z2258.

Etymology. From the Ancient Greek *holos* (“whole”) and *sternon* (“chest, breast”), referring to the presence of entire uroster-nites, including the first one.

Habitat. This troglobiont species has been found in two underground artificial galleries excavated underneath dry riverbeds on Gran Canaria Island in order to collect phreatic water. The characteristics of these biotopes are described by Naranjo et al. (2009: 60–67), which include a map of Mina de los Llanetes (p. 70). This gallery has a relatively natural environment since it was dug a long time ago, thus the subterranean environment has recovered from the initial disturbance, and an abundance of various troglobionts belonging to other invertebrate groups occur there.

Discussion. *Canariletia* gen. n. has a unique combination of characters, not shared by any other genus of Nicoletiidae.



Figs 16–21. *Canariletia holosterna* gen. n. sp. n. 16 – urotergite X of male (holotype); 17 – urotergite X of female; 18 – uroster-nite I (paratype); 19 – urosternite III (holotype); 20 – urosternite VIII (holotype); 21 – coxites IX, penis and paramera (holotype). Scales: 0.1 mm.

Accepting a simple division in two subfamilies of the family Nicoletiidae, as Smith (1998) does, *Canariletia* can be placed in the subfamily Nicoletiinae, since this new genus has elongate body shape, long antennae and terminal filaments and subterranean habitat. It cannot be included in

Figs 22–25. *Canariletia holosterna* gen. n. sp. n., female. 22 – Coxite VIII; 23 – subgenital plate; 24 – coxite IX and ovipositor; 25 – apex of ovipositor. Scales: 0.1 mm.

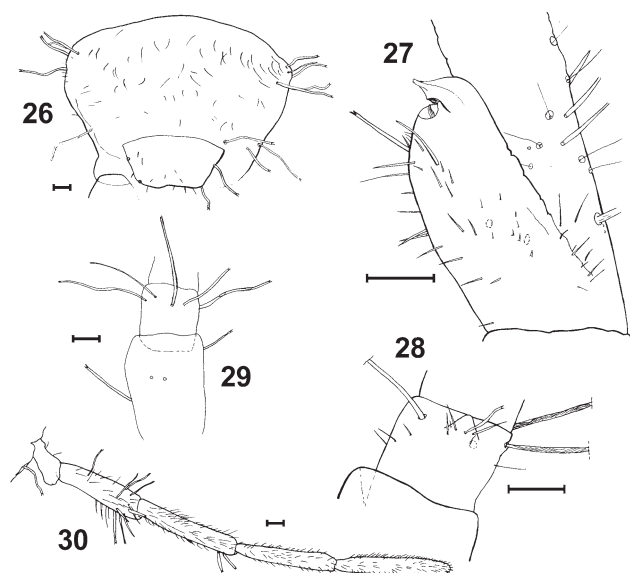
the subfamily Atelurinae, with short-bodied and myrmeco-philic or termitophilic representatives.

If a more complex suprageneric classification is consid-ered, such as that proposed by Mendes (1988), then this new genus does not fit the description of any of the sub-families described, as is shown in Table 1.

In *Canariletia*, the pedicellar apophysis of the male shows a unique shape and structure, especially in terms of the distribution pattern of glandular setae on its surface. This glandular area is associated in some other genera

TABLE 1. Comparison of the characters of *Canariletia* gen. n. with those of four subfamilies of non-atelurine Nicoletiidae established by Mendes (1988), excluding Protrimenurinae, which is now considered to be an independent family.

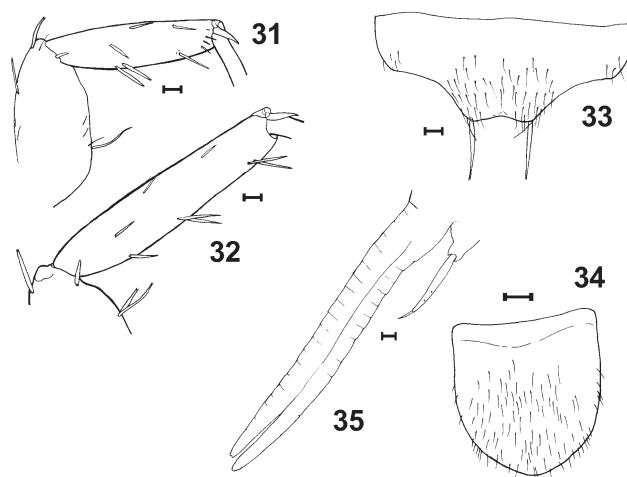
	<i>Canariletia</i> gen. n.	Coletiniinae	Subnicoletiinae	Cubacubaninae	Nicoletiinae
Pedicellar apophyses in males	Present, distal, inner side	Present, distal, inner side	Absent. If present, medial or basal	Absent. If present, basal or outer side	Absent
Glandular area on pedicel	Present, extensive, associated with the apophysis	Associated with the apophysis, usually with only a glandular seta on an apical fovea	Present, extensive, not associated with apophyses	Present, extensive, not associated with apophyses	Absent
Pegs on urotergite X of males	Absent	Usually present	Absent	Absent	Absent
Pegs on terminal filaments of males	Absent	Usually present	Variable	Absent	Absent
Urosternite I entire (coxopodites fused with the sternum)	Yes	No	Yes	Yes	No
Urosternites II–VII composite (with sutures separating coxopodites)	No	No	No	Yes	Yes
Number of pairs of abdominal styli	8 (II–IX)	8 (7 in <i>Lepidina</i>)	Variable (1–8)	8	8
Fusion of coxites IX on a single sternite	No	No	Yes	Yes	Yes
Parameres simple (without subdivisions or apical modifications)	Yes	Yes	No (only simple in some Afrotropical genera)	Yes (usually)	Yes



Figs 26–30. *Coletinia majorensis* sp. n. 26 – head; 27 – pedicellar apophysis of the left antenna of a male; 28 – pedicellar apophysis of the right antenna of a male; 29 – pedicel of female; 30 – maxillary palp. Scales: 0.1 mm.

of Nicoletiidae (such as those included in the American subfamily Cubacubaninae) with the trunk of the antennal pedicel, and not the apophysis. Those genera bearing an apophysis with glands, such as the Palearctic and most Afrotropical genera in this family, only have an apical fovea with a single glandular seta; *Canariletia* lacks fovea and has an extensive area of glands on one side of the projection of the apophysis.

From a geographic point of view, the new genus is related to those in the subfamily Coletiniinae, whose distributions are mainly Palearctic and Afrotropical. For this reason, the Canarian new genus is compared with members of this group (Table 2). *Canariletia* shares with them the following characters: the arrangement of styli and vesicles on abdominal segments, a well developed subgenital plate in females, free coxites in males and simple parameres (without divisions or modifications), etc. All of these characters can be considered plesiomorphic in the Nicoletiidae (this is the argument against treating the group Coletiniinae



Figs 31–35. *Coletinia majorensis* sp. n. 31 – protibia; 32 – metatibia; 33 – urotergite X of female; 34 – subgenital plate of female; 35 – ovipositor. Scales: 0.1 mm.

as a valid subfamily from a phylogenetic point of view). However, in addition to the shape and structure of the pedicellar apophysis in males, *Canariletia* also fails in two important details in terms of the diagnosis of Coletiniinae presented by Mendes: the absence of division of urostermite I (Coletiniinae have sutures separating median sternum and lateral coxopodites) and the absence of sensorial pegs in the urotergite X of males (present in Coletiniinae). The exclusion of *Canariletia* of Coletiniinae is uncertain, because it is likely that characters in which the Canarian genus differs from this group of Old-World Nicoletiidae are autapomorphies. If *Canariletia* has to be included in the subfamily Coletiniinae, this suprageneric group needs to be redefined.

The absence of pregenital coxopodites in urosternites I–VII (they have been described as “entire” since there are no evident sutures dividing the ventral plate into a sternum and two lateral sclerites) is probably an apomorphic character shared with members of the subfamily Subnicoletiinae, but in this group glandular apophyses are absent on the pedicel and the coxites IX are fused, which is not evident in the Canarian genus. Moreover, African genera assigned to Subnicoletiinae differ greatly from *Canariletia* in lacking

TABLE 2. Comparison of *Canariletia* gen. n. with all Eurasian and African genera of non-Atelurinae Nicoletiidae (assignable to the subfamily Coletiniinae sensu Mendes). Characters shared by all of them are not included, but indicated in Table 1.

	Body length of adults	Scales	Sexual dimorphism in hind margin of X urotergite	Empodium	Pairs of abdominal styli
<i>Canariletia</i> gen. n.	6–7 mm	Present, typical, with deep thin rays	Slight	Present	8
<i>Coletinia</i> Wygodzinsky	Up to 20 mm	Absent	Pronounced	Present	8
<i>Squamatinia</i> Mendes & Reboleira	Up to 26 mm	Present, modified, without deep thin rays	Pronounced	Present	8
<i>Lepidina</i> Silvestri	6–7 mm	Present and typical (absent on head)	Not described (probably slight)	Present	7
<i>Lepidospora</i> Escherich	Up to 19 mm	Present and typical (absent on head in the subgenus <i>Brinckina</i>)	Pronounced	Present	8
<i>Pseudobrinckina</i> Mendes	9.4 mm	Present and typical (absent on head)	Male unknown	Absent	8

scales (except in *Hemateura*), showing a strong tendency to have an ateluriform body shape, reduced number of abdominal vesicles and styli, only one apical conule on the galea, reduced subgenital plate in females, etc. So the relation of *Canariletia* with the subfamily Subnicoletiinae is even less probable. This group has its centre of distribution in the Southern Hemisphere (Neotropical, Afrotropical and Australasian regions) and is very heterogeneous in some characters that are stable in other subfamilies, so is probably paraphyletic or polyphyletic, as Mendes (op. cit.) and Smith (1998) suggest. Several genera of Afrotropical Subnicoletiinae are poorly studied; for example, *Subnicoletia* Silvestri, 1908 is only known from its original description and the whereabouts of the type are unknown, so it is difficult to update their relationships with recently described taxa.

For these reasons, the assignment of *Canariletia* gen. n. to any of the previously described subfamilies of Nicoletiidae is not clear, so it can be considered as incertae sedis. Placing the Canarian new genus as an odd Coletiniinae is the most reasonable alternative to this provisional statement. But for a sure attribution, a world-wide revision of the suprageneric taxonomy of Nicoletiidae is needed.

***Coletinia majorensis* Molero, Gaju, López & Bach sp. n.**

Description

Body length up to 11 mm. The tip of the abdomen of the holotype has been broken off and only the first 7 mm of the body are preserved. Habitus of the female as in Fig. 1.

Moderate spiralization of macrosetae in specimens mounted in Tendeiro medium. Head (Fig. 26) with relatively abundant minute setae, and a few bifid macrosetae: 2+2 on the lateral margins of the frons, 3–4 in the ocular region and 1–3 on the genal region.

Antennae asymmetric in the male: the left pedicel shows a well developed apophysis; the right pedicel has a small triangular apophysis. The left apophysis is subcylindrical and nearly as wide as the diameter of the pedicel; the trunk of the apophysis bears a few short setae and two bifid macrosetae. On the apical region of the left apophysis there is a glandular seta inserted in a pit and a lamellar expansion curved above the pit; this expansion has a small sclerotized region in its concavity (Fig. 27). The right apophysis is subtriangular (Fig. 28), its width about 0.3 times the diameter of the pedicel and bearing few setae (one of them bifid). In females, the pedicel bears only 5 long bifid macrosetae (Fig. 29).

Apical segment of the maxillary palp about 7 times longer than wide and 1.2–1.3 times longer than the preceding article (Fig. 30). Labial palp as in other Nicoletiidae.

Protibiae (fig. 31) and mesotibiae 4.1–4.2 times longer than wide; this length/width ratio is 4.75–5.15 for metatibiae (Fig. 32). All tibiae with 2 (sometimes 3) dorsal, 1 lateral and 4–5 ventral spines shorter than the diameter of the tibiae. Each tibia with two proximal spines ventrally inserted and one additional, short, subdistal spine.

Nota and urotergites as in other Nicoletiidae. Hind margin of urosternites with 1+1 submedian and 1+1 lateral macrosetae, and supplementary infralateral non-bifid long setae. There are also 1+1 discal macrosetae.

The urosternite VIII, parameres, urotergite X and terminal filaments of the male are missing from the only male specimen available.

Urotergite X of females with abundant setae on the disc and a slightly concave hind margin; two long spines are inserted on the posterolateral angles (Fig. 33).

Subgenital plate semielliptical, about as long as wide or 1.1 times longer than wide, with rounded convex (slightly acute) hind margin (Fig. 34). Ovipositor with 22 divisions, exceeding the apex of stilus IX by more than 2.5 times the length of a stylus (Fig. 35).

Type material. Holotype ♂, Canary Islands, Fuerteventura, Villaverde, Cueva del Llano, 25-IV-2005, P. Oromí leg., incomplete specimen (abdominal tip missing) mounted on slide. Deposited in DZUL (Refs. LE-15 and 28505).

Paratypes: 3♀ from the same locality: 1♀ mounted on a slide, P. Oromí leg. (LE-14), 25-IV-2005, deposited in UCO (Ref. Z2259), and 2♀ in alcohol, 9-XII-2004, S. Martín leg., deposited in ICT, and 19-IX-2007, P. Oromí leg., deposited in DZUL (Ref. 28506).

Etymology. The specific name is related to “majorero”, a word that refers to anyone (or anything) from the island of Fuerteventura, where the species has been found.

Habitat. This species inhabits subterranean habitats suitable for troglobionts on Fuerteventura, an island with subdesertic climate and dry caves. It was recorded from only one cave, Cueva del Llano, in which it is probably not abundant given that very few specimens have been observed there although this cave has been visited on many occasions. Cueva del Llano is a remarkably old lava tube (about 900,000 years old) as these volcanic caves usually collapse or become silted after a few hundred thousand years (Howarth, 1973). The funnel-shaped area around the entrance facilitates the funnelling of occasional heavy rains into the cave, which forms temporary pools in its deeper parts (see Montserrat & Romero, 1980). When the pools dry out, the clayish soil cracks; *Coletinia majorensis* sp. n. has been observed to take refuge in the clay fissures. Cueva del Llano is the only cave with some permanent moisture on Fuerteventura, and the only one that is occupied by a few troglobiont species (see Rando et al., 1993) such as *Maiorerus randoi* Rambla, 1993, an endangered harvestman recently protected by law. As *Coletinia majorensis* is even scarcer, it is very vulnerable to extinction and should also be legally protected, especially taking in account that Cueva del Llano is a show-cave with abundant visitors.

Discussion. The genus *Coletinia* Wygodzinsky, 1980 includes endogean or troglobiontic species found until now in the Mediterranean region, mainly in southern Europe. Only one species has been described from Brazil (Mendes & Ferreira, 2002). *Coletinia majorensis* sp. n. represents the first record of this genus, not only for the Canary Islands but also for the Macaronesian region. Its diagnostic characters suggest that it is very close to Iberian species, mainly to those with asymmetric antennae. The closest species is probably *C. asymetrica* Bach et al., 1985, because

the configurations of the pedicellar apophyses of males are very similar; compare Fig. 24 with the figures in Bach et al. (1985). However, *C. asymetrica* differs in the structure of the urotergite X of females, which has a straight hind margin and nearly lacks setae. The ovipositor of *C. asymetrica* has 33–35 subdivisions, whilst *C. majorensis* has only 22. Moreover, the ratio length/width of the apical segment of the maxillary palp is higher in the new species, but the ratio length of the apical segment/length of the preceding segment of this palp is higher in *C. asymetrica*.

Other species of *Coletinia* with asymmetric antennae in males are *C. subterranea* (Silvestri, 1902) and *C. brasiliensis* Mendes & Ferreira, 2002, but the shape and development of the apophysis of the left antenna is clearly distinct in these species. Finally, the antennae of several species recently found in Southern Spain (Molero et al., 2013) are asymmetric, but the structure of their pedicellar apophyses is quite different.

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