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NEW AND REMARKABLE CURCULIONOIDEA FROM MACARONESIA (COLEOPTERA)

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With 27 figures

ABSTRACT. Two new species of Curculionidae from Madeira (*Torneuma desilvai* n. sp., São Vicente and *Caulotrumpis erberi* n. sp., Boca do Risco) are here described and discussed. The genital structures (male, female) of the *Auletobius* species allowed us to clarify the taxonomic status of *Auletobius maderensis* (WOLLASTON, 1854), *Auletobius cylindricollis* (WOLLASTON, 1864) e *Auletobius convexifrons* (WOLLASTON, 1864). Finally, female genitalia of *Anillobius solifuga* FAUVEL, 1908 are here illustrated.

KEY WORDS: Curculionoidea, Canary Islands, Madeira, new species.

RESUMO. São descritas duas novas espécies de Curculionidae para a Ilha da Madeira (*Torneuma desilvai* n. sp., São Vicente and *Caulotrumpis erberi* n. sp., Boca do Risco). Com base na estrutura dos órgãos genitais das espécies do género *Auletobius*, os autores propõem uma organização taxonómica para as espécies *Auletobius maderensi*, *Auletobius cylindricollis* e *Auletobius convexifrons*. Finalmente, são fornecidas ilustrações da genitalia feminina de *Anillobius solifuga* FAUVEL, 1908.

PALAVRAS CHAVE: Curculionoidea, Ilhas Canárias, Madeira, nova espécie.

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Thanks to the intense researches carried out by many entomologists during the last 150 years, a rather good knowledge of the insect fauna of the Macaronesian archipelagoes has been achieved. Nevertheless, information on species related to peculiar environments such as soil, forest litter, caves etc. is still incomplete, and several new species have been recently described amongst Coleoptera Curculionoidea (FRANZ 1970, 1977, 1981; ISRAELSON 1980, 1982; OSELLA & POGLIANO OSELLA 1984, FOLWACZNY 1979, 1984; ALONSO ZARAZAGA 1987, 1990).

We describe two new species from Madeira and report here new data on the distribution in Macaronesia of some Curculionoidea.

We are grateful to Dr. DIETER ERBER (Giessen-Lahn) for sending us the specimens, and for the gift of the holotypes of the new species.

ATTELABIDAE: Rhynchitinae

Auletobius maderensis (WOLLASTON, 1854)

Figures 2,5,11,13

The species was described by Wollaston (1854:416) upon some specimens from Curral das Romeiras (Funchal) and "Santa Anna" (Santana). In the description of *A. convexifrons* WOLLASTON from the Canary Islands, Wollaston (1865:280) wrote that "[*A. convexifrons*] should be treated as more than a slight geographical modification of it [*A. maderensis*]", thus implying that both species were very closely related.

Subsequent authors (VOSS 1934, 1935, 1952 ; DALLA TORRE & VOSS, 1937; UYTENBOOGAART & ZUMPT 1940) did not make an in-depth study of the true relationship between the Macaronesian *Auletobius*.

Analysis of the genital structures (Figures 1-10) allowed us to clarify the taxonomic status of *A. maderensis* WOLLASTON, *A. cylindricollis* WOLLASTON, and *A. convexifrons* WOLLASTON. Species of this complex are variable both in colour and external features (WOLLASTON 1854, 1864). Our studies confirmed the species status of *A. maderensis* and *A. convexifrons*, and the close affinity between them.

All available faunistic and biological data from literature and personal records are here summarized.

Auletobius maderensis (WOLLASTON, 1854)

Figures 2,5,11,13

LITERATURE RECORDS. Madeira: Santa Anna (WOLLASTON 1854); Queimadas, Ponta do Pargo, Rosario, De Loros (= Chão dos Louros) near Encumeada, Prazeres (LINDBERG 1963); Ribeiro Frio (ERBER 1990). Funchal: Curral das Romeiras (WOLLASTON 1854).

SPECIMENS STUDIED. Madeira: Corticeiras, Quinta Muchachos-Boca dos

Namorados, m 650-1000 , 30.XII.1995, sweeping dry vegetation, 1 female, leg. ERBER; Ribeiro Frio, m 780, under *Erica*-bark, 18.IX.1988, 1 ex., leg. ERBER; vicinity of Seixal, Chão da Ribeira, m 250, on *Myrica faya* Aiton, 20.III.1992, 1 ex., leg. AGUIAR.

Auletobius cylindricollis (WOLLASTON, 1864)

Figures 1,4

LITERATURE RECORDS. Tenerife: Souzal, Agua García (WOLLASTON 1864), Las Mercedes (WOLLASTON 1864, UYTENBOOGAART 1937); Tacoronte (UYTENBOOGAART 1935); Los Organos (UYTENBOOGAART 1940); Tenerife: Barranco San Antonio, Las Mercedes, Orotava, La Perdoma (LINDBERG 1958); Las Lagunetas (ISRAELSON *et al.* 1982); Gomera: El Cedro (ISRAELSON *et al.* 1982).

SPECIMENS STUDIED. Tenerife: Monte del Agua, m 800-1000, 25.III.1992, 4 exx., legg. OSELLA, BIONDI & ALTEA; Anaga, Cabezo del Tejo, 750 m, 27.III.1992, 1 ex., legg. OSELLA, BIONDI & ALTEA.

Auletobius convexifrons (WOLLASTON, 1864)

Figures 3,6,7,8,9,10,12,14

LITERATURE RECORDS. La Palma: Topito (UYTENBOOGAART 1940); Gomera: Alajeró; Tenerife: Santa Ursula; Agua Mansa; Fuente Fria (LINDBERG 1958); Las Mercedes (UYTENBOOGAART 1937, LINDBERG 1958); Gran Canaria: Tamadabe; Barranco Mogan (LINDBERG 1958).

SPECIMENS STUDIED. Madeira: Lv. d. Caldeirão Verde, Venda Nova, 860 m, 20.IX.1992, 2 exx., leg. ERBER. La Palma: Tijarafe, 600 m, 29.III.1992, 1 male, legg. OSELLA, BIONDI & ALTEA; dint. Mirca, Barranco Carmen Dorador, 250 m, 29/30.III.1992, 2 exx., legg. OSELLA, BIONDI & ALTEA; Barranco de Los Franceses, 29.XI.1978, 1 ex., leg. BRACHAT. Tenerife: Barranco Hondo, 12.I.1974, 3 male, on *Cistus* sp., leg. Brito; Teno, Foresta de Los Silos, m 800, 8-13.II.1983, 1 ex., leg. COLONNELLI; Anaga, Cabezo del Tejo, m 750, 27.III.1992, 1 ex., legg. OSELLA, BIONDI & ALTEA; vicinity of El Bailadero, m 500-750, 24-27.III.1992, 1 ex., legg. OSELLA, BIONDI & ALTEA; Monte del Agua, m 800-1000, 25.III.1992, 2 exx., legg. OSELLA, BIONDI & ALTEA. Gomera: Monte El Cedro, 1000 m, 2/4.IV.1992, 7 exx., legg. OSELLA, BIONDI & ALTEA; Degollada de Peraza, 1000 m, 2/4.IV.1992, 1 ex., legg. OSELLA, BIONDI & ALTEA.

CURCULIONIDAE: Polydrosinae

Anillobius solifuga FAUVEL, 1908

Figures 17-20

SPECIMENS STUDIED. Madeira: São Vicente, Gruta do Cardal, in a Barber trap,

17.X.1995, 1 female, leg. João da Silva (coll. ERBER).

This species was known for long time only upon the type material. Quite recently it was recollected by FRANZ (1970); see also ERBER & AGUIAR (1996). Male genitalia were illustrated by OSELLA (1976). Female genitalia are here illustrated for the first time (Figures 17-20). *A. solifuga* was collected from April to October.

Anillobius FAUVEL, 1908 comprises two species apparently living on litter, as they can be collected by sifting. Occasionally, they also occur under big stones or, like in this case, in the caves.

CURCULIONIDAE: Cryptorhynchinae

Torneuma (Torneuma) desilvai n. sp.

Figures 21-25

TYPE SERIES. Madeira: São Vicente, Gruta do Cardal (entrance), in a pitfall trap, 27.IX.1993, 1 male (holotype) leg. JOÃO DA SILVA; same locality and data, 1 male and 1 female (paratypes); same locality, IV.1990/IX.1990, 2 exx., leg. ERBER & PIEPER (paratypes); same locality, in a Barber trap, 2.VI.1993, 1 male (paratype); same locality, 5.XII.1994, 1 male and 1 female, leg. JOÃO DA SILVA (paratypes); Gruta do Cardal, in a Barber trap, 24.IX.92, 1 female, leg. PIEPER (paratype); same locality, 17.X.1995, 1 female, leg. JOÃO DA SILVA (paratype).

DIAGNOSIS. A *Torneuma* s. str. readily separated from *T. coecum* WOLLASTON, 1854 (= *T. brincki* ROUDIER, 1957), also from Madeira, by the larger size (up to mm 2.8), more elongate pronotum, head separated from rostrum by a clearly marked saddleback, scutellum not visible, more robust legs, third tarsal segment deeply bilobed, more elongate onychium, and aedeagus with evident and sharp apical lip (Figures 26, 27).

HOLOTYPE MEASUREMENTS. Body length with rostrum: mm 3.43. Pronotum + elytra: mm 2.80. Pronotal length: mm 0.87; pronotal width: mm 0.75. Elytral length: mm 1.93; elytral width: mm 1.03. Scape: mm 0.33; funiculus: mm 0.30; club: mm 0.20.

HOLOTYPE MALE. Reddish-brown; antennae, rostrum and tarsi pale. Dorsum flattened, sculpture scarcely visible, antennae moderately elongate. Eyes lacking. Rostrum clearly separated from head by an annular constriction, clothed with scales basally and shining apically, about 4 times longer than its basal width, dorsal margin weakly curved, with slight median carina, laterally enlarged from the base to the antennal insertion, this enlargement hiding the scrobes in dorsal view, larger at the base, narrow before the antennal insertion and laterally parallel. Scape cylindrical, apically a little enlarged. Funicular joints 1 and 2 cylindrical, elongate; 3 longer than wide; 4-5 as long as wide, 6-7 globose. Club four-segmented, elliptical, with the segment 1 very elongate (as long as about 2/3 of the total length of the club). Pronotum evidently longer than wide, slightly narrowing at base, widest

at the middle point of sides, narrowed anteriorly and very weakly sinuate at apex, finely sculptured, without median carina. Elytra oval, base wider than pronotum and slightly sinuate; humeri wanting; striae hardly visible, their punctures vanishing; interstriae 3 times wider than striae and bearing very short bristles. Legs elongate and robust; tibiae strongly uncinata, apically with setae; femora resting in deep grooves in repose; tarsal segments 1 and 2 narrow; 3 elongate, bilobed; onychium very elongate (about as long as 2 + 3); minute claws free, very short. Prosternum deeply sulcate, margin raised, sinuate; rostral channel semicircularly closed at apex. Sternites 1 and 2 very large, medially sulcate; 1 larger than 2, the suture between them obsolete; 3 and 4 narrow; 5 wider than 3 + 4. Aedeagus curved, with elongate and acute apical lip (Figures 21-23).

PARATYPES. Females can be distinguished from males by sternites 1 and 2 not sulcate. Paratypes are very similar to the holotype except for some small variations of the body length (mm 2.50-2.96).

ETYMOLOGY. The species is named after one of the collectors, Mr. João da Silva (Madeira, Funchal).

REMARKS. The subgeneric placement of *Torneuma* species is still uncertain (WOLLASTON 1860, 1865; ROUDIER 1965; F. SOLARI 1937; GONZALES 1971; VOSS 1956; FOLWACZNY 1973; OSELLA & POGLIANO OSELLA 1984; ABBAZZI *et al.* 1992). For the moment it appears the best to follow GONZALES (1971) and OSELLA & POGLIANO OSELLA (1984) subgeneric classification of this genus, for which all the species with deep semicircularly ending rostral channel which reaches behind the median coxae must be included in *Torneuma* s. str.

The two species of *Torneuma* from Madeira can be separated as follows:

1 - Pronotum elongate (length/width, 0.87/0.75); head separated from rostrum by an evident constriction; scutellum invisible; tarsal segment 3 deeply bilobed; onychium elongate. Aedeagus with elongate apical lip. Length: mm 2.80 - 3.06. Madeira: São Vicente
..... *desilvai* n. sp.

1' - Pronotum less elongate (length/width, 0.71/0.62); head separated from rostrum by a weak constriction; scutellum visible; tarsal segment 3 shallowly bilobed, onychium short. Aedeagus with rounded apex. Length: mm 1.96-2.00. Madeira: Ribeira das Cales
..... *coecum* WOLLASTON

ECOLOGY. The new species was collected in Barber traps placed in April and May near the entrance of the Gruta do Cardal. The traps were checked in September and October. However, JOÃO DA SILVA found one male and one female also in December.

NOTE. It is worthy to note that in Madeira only occur species of the subgenus *Torneuma* s. str., members of which are widespread in the west Mediterranean region. On the contrary, the subgenus *Paratorneuma* ROUDIER, 1956 seems to be endemic of the Canary Islands (OSELLA & POGLIANO OSELLA 1984).

CURCULIONIDAE: Cossoninae

Caulotrumpis erberi n. sp.

Figures 16,19

TYPE MATERIAL. Madeira, northern coast near Boca do Risco, m 430, 31.III.1990, 1 female (holotype), leg. Erber (coll. OSELLA).

DIAGNOSIS. A *Caulotrumpis* closely related to *C. impius* WOLLASTON, 1854 also from Madeira, and recognizable by the metallic lustre of integument, strongly curved rostrum, short scrobes strongly bent downwards, more elongate antennae, pronotum wider and finely punctate, tibia apically with more external uncus, elytra without striae, and different shape of female genitalia (Figures 15,16,18,19).

HOLOTYPE MEASUREMENTS. Body length with rostrum: mm 3.43. Pronotum + elytra: mm 2.96. Pronotal length: mm 0.93; pronotal width: mm 1.00. Elytral length: mm 2.03; elytral width: mm 1.40. Scape: mm 0.25; funiculus: mm 0.34; club: mm 0.15.

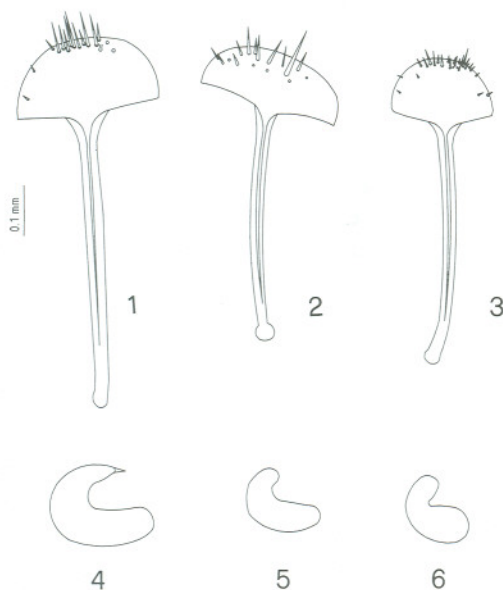
HOLOTYPE FEMALE. Pitchy-black, shining, glabrous, legs reddish brown, tarsi and antennae light red. Rostrum curved, slightly dilated apically; dorsum punctured, intervals among punctures finely shagreened. Deep and shining short scrobes strongly bent downwards, ending far away from eyes, not visible from above. Antennae with short setae; scape weakly curved, as long as the first four funicular joints; funicular segment 1 wider than others and a little bit longer than wide; joint 2 conical, more than twice longer than wide; 3-4 subquadrate; 5-7 spherical; club very thick. Head globose, weakly impressed between eyes; eyes oval, flattened, with about 60 minute ommatidia. Pronotum slightly transverse, wider at the basal fourth and from that point to front margin with subparallel sides slightly converging apically; base almost straight; disc weakly convex, regularly and shallowly punctured, punctures are separated by a shagreened interval 1.5-2.0 times the width of each of them, punctures becoming gradually smaller and scattered toward apex. Scutellum small, shining. Elytra elongate, subparallel, widest at the basal third, shining and glabrous; base slightly raised; sutural intervals joined, regularly and superficially shagreened; striae ill-evident, formed by a series of small punctures irregularly ordered. Legs short; tibiae shortly setose, apically triangularly enlarged, with strong external uncus; tarsal segment 1 elongate, 2 narrow, transverse, 3 bilobed; onychium very long. Prosternum with very short setae, mesosternum situated at a level lower than that of pro- and metasternum; metasternum with slight median groove. Procoxae globose, subcontiguous, mesocoxae less raised, separated each other by an interval about as wide as a half of the diameter of coxa. Urosternites shining, finely shagreened, subconvex; sternite 1 shallowly punctured, wider than 2, these segments are joined together, and the suture is slightly curved; urosternites 3-4 narrowed; 5 semicircular, with dense impressed punctuation. Genital structures: see Figures 16,19.

REMARKS. *C. impius* WOLLASTON, 1854 is readily differentiated from the new species by the 36-38 larger elliptical ommatidia, shorter antennae, coarsely punctured

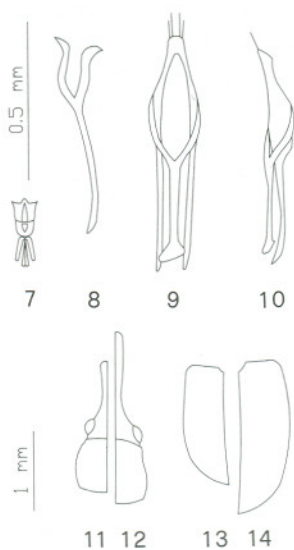
pronotum, evident elytral striae, weaker tibial uncus. The new species for the integumental lustre is also similar to *C. terebrans* WOLLASTON, 1854 from which differs by the larger size (mm 3.6 instead of mm 2.8), small but visible scutellum (lacking in *C. terebrans*), elytra with almost effaced striae (with clearly visible fine striae in *C. terebrans*), elytral sides parallel (elytra elliptical in *C. terebrans*).

ECOLOGY. The new species was collected under *Aeonium* sp. (Crassulaceae). It is impossible to argue if this plant is the host plant. Biological information about *Caulotrupid* are scarce. *C. impius* WOLLASTON occurs on *Silybum marianum* GAERTNER (Asteraceae) and *Euphorbia* spp. (FOLWACZNY 1973). The remaining *Caulotrupid* species seem to be associated with *Laurus* spp. (Lauraceae) and *Euphorbia* spp. (Euphorbiaceae) (FOLWACZNY 1973). Only *C. terebrans* WOLLASTON, 1854 has been found associated with succulent plants. It is otherwise true that wood-feeder Cossonini are often polyphagous.

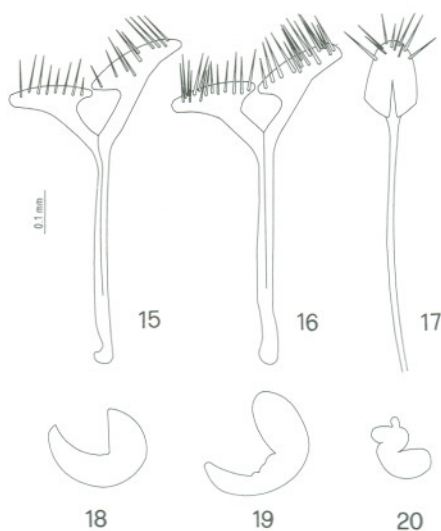
NOTE. The genera *Caulotrupid* WOLLASTON, *Pselactus* BROUN, *Salvagopselactus* FOLWACZNY and *Caulotrupid* VOSS are closely related. *Caulotrupid* occurs in Madeira and Azores (ISRAELSON, 1985). The single species of *Salvagopselactus* is distributed in Salvajes. *Caulotrupid* (1 species) and *Pselactus* BROUN (some 15 species) are widely distributed in Macaronesia, Europe and Mediterranean region, although the greater majority of them occur in the Canary Islands.



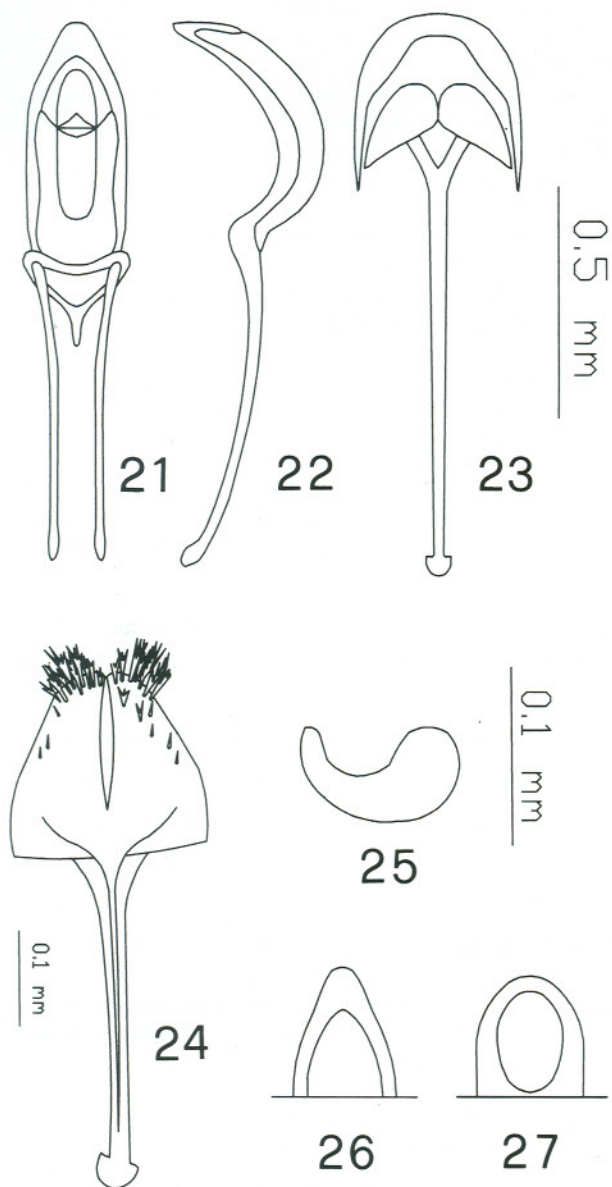
Figs. 1-6 - Spiculum ventrale and spermatheca of: *Auletobius cylindricollis* WOLL. (1, 4); *A. maderensis* WOLL. (2, 5); *A. convexifrons* WOLL. (3, 6).



Figs. 7-14 - *Auletobius convexifrons* WOLL. genital armature (7), spiculum gastrale (8), aedeagus dorsal (9) and lateral view (10); head and elytra of: *A. maderensis* WOLL. (11, 13); *A. convexifrons* WOLL. (12, 14).



Figs. 15-20 - Spiculum ventrale and spermatheca of: *Caulotrupsis impius* WOLL. (15, 18); *C. erberi* n. sp., holotypus (16, 19); *Anillobius solifuga* FAUV. (17, 20).



Figs. 21-27 - Aedeagus of *Torneuma desilvai* n. sp., holotypus: dorsal (21) and lateral (22) view. Spiculum gastrale of *T. desilvai* n. sp. allotypus (23); spiculum ventrale (24) and spermatheca (25). Apex of aedeagus of: *T. desilvai* n. sp. (26) and *T. coecum* WOLL. (27).

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