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A contribution to the knowledge of genus *Malthinus* Latreille, 1806 of the Iberian Peninsula (Coleoptera: Cantharidae) with description of two new species

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Abstract

Availability of new materials allows a better knowledge of the seven *Malthinus* species belonging to the *Malthinus ornatus* Rosenhauer group which are present in the Iberian Peninsula. Two species are described as new: *Malthinus angustatus* n. sp. (North and Central Spain, North of Portugal) and *Malthinus capitatus* n. sp. (North and Central Spain). The lectotype is designated for *Malthinus cincticollis* Kiesenwetter, 1866. A determination key for all species of the group (including the French neighbouring species *M. kiesenwetteri* Brisout de Barneville, 1863) is proposed, together with illustration of several characters, including male genitalia and female genital segment. A map of their distributions is also provided.

Key words: Coleoptera, Cantharidae, *Malthinus*, *Malthinus ornatus* group, *Malthinus angustatus* n. sp., *Malthinus capitatus* n. sp., Iberian Peninsula.

Resumen

Contribución al conocimiento del género *Malthinus* Latreille, 1806 en la Península Ibérica (Coleoptera: Cantharidae) y descripción de dos nuevas especies

La disponibilidad de nuevos especímenes permite completar el conocimiento de las siete especies del género *Malthinus* pertenecientes al grupo de *Malthinus ornatus* Rosenhauer presentes en la Península Ibérica. Se describen dos especies como nuevas: *Malthinus angustatus* n. sp. (norte y centro de España, norte de Portugal) y *Malthinus capitatus* n. sp. (norte y centro de España). Se designa lectotipo para *Malthinus cincticollis* Kiesenwetter, 1866. Se proporciona una clave para separar todas las especies ibéricas del grupo *Malthinus ornatus* Rosenhauer (incluida la vecina francesa *M. kiesenwetteri* Brisout de Barneville, 1863), así como la ilustración de varios caracteres, incluidos los de la genitalia masculina y el segmento genital femenino. Se ofrece también un mapa de su distribución.

Palabras clave: Coleoptera, Cantharidae, *Malthinus*, grupo de *Malthinus ornatus*, *Malthinus angustatus* n. sp., *Malthinus capitatus* n. sp., Península Ibérica.

Laburpena

***Malthinus* Latreille, 1806 generoari buruzko Iberiar Penintsulako ezagutzari ekarpena (Coleoptera: Cantharidae) eta bi espezie berriren deskribapena**

Hainbat ale berriren eskuragarritasunak ahalbidetu du Iberiar Penintsulan bizi eta *Malthinus ornatus* Rosenhauer taldeari dagozkion *Malthinus* generoko zazpi espezieen ezagutza osatzea. Bi espezie deskribatzen dira berriztat: *Malthinus angustatus* n. sp. (Espainiaren iparraldea eta erdialdea, Portugalgo iparraldea) eta *Malthinus capitatus* n. sp. (Espainiaren iparraldea eta erdialdea). *Malthinus cincticollis* Kiesenwetter, 1866-ren lektotipoa izendatzen da. *Malthinus ornatus* Rosenhauer taldeko iberiar espezie guztiak bereizteko klabe bat proposatzen da (zeinean Frantziako *M. kiesenwetteri* Brisout de Barneville, 1863 ere sartu baita), eta karaktere batzuk irudiztatzen dira, hala nola arren genitaliarenak eta emeen genitaliadun segmentua. Espezieen banaketa-mapa bat ere aurkezten da.

Gako-hitzak: Coleoptera, Cantharidae, *Malthinus*, *Malthinus ornatus* taldea, *Malthinus angustatus* n. sp., *Malthinus capitatus* n. sp., Iberiar Penintsula.

Introduction

The genus *Malthinus* Latreille, 1806 (Cantharidae) shows a high degree of specific variability in the Iberian Peninsula and is well represented in the Iberian-Balearic area, where successive works and catalogues record 32 valid species (Fuente, 1931; Delkeskamp, 1977; Kasantsev and Brancucci, 2007; Diéguez Fernández, 2011, 2012). Among the species whose elytra are smooth –namely not punctate-striate (free from rows of regularly aligned punctures)– a particular group is clearly recognizable by wide head with protruding eyes and pronotum narrower than head, apically constricted with thinly bordered yellow edges. The aedeagi in this *Malthinus ornatus* group have, as common characters, a sternal lobe named «basal piece» by Brancucci (1980) whose distal edge is fitted medially by a barely sclerotized expansion and the apical part of tegmen which is extended by a single median apophyse, markedly developed in this species-group. The females' genital segments have coxites folded transversely at the base and the apical part with a conspicuous stylus.

The first described species were *Malthinus ornatus* Rosenhauer, 1856 and *M. cincticollis* Kiesenwetter, 1866. After more than one century, two further species have been added by Wittmer: *M. geigy* Wittmer, 1971 and *M. cordobensis* Wittmer, 1971. Several collecting trips to Spain and Portugal by the writer, after 1964, have led to the recognition of two further new species which, in the following years, were also found both in museum collections and among specimens submitted by friends and colleagues. *Malthinus kiesenwetteri* Brisout de Barneville, 1863, known from France, Collioure (Pyrénées-Orientales), is included here as well because its discovery in the neighbouring part of Spain is likely.

Material, methods and abbreviations

The material studied belongs to the author's personal collection (about 150 specimens obtained through personal surveys) and to several Museums and private collections, below listed (about 80 specimens). All are dry-preserved glued on small cardboards and pins, as usual.

Photographs of habitus were taken from specimens mounted on cardboards, with a Canon M50 camera

fitted with Canon MP-E 65 mm macro-lens and lighted by means of four lamps and a diffusing screen; multiple frames have been assembled with Helicon Focus and edited with Photoshop software. Microphotographs of male genitalia were taken either with the piece mounted on a pointed card (by the use of a 20× microscope objective or included in DMHF water-soluble mounting medium, in both cases multiple frames have been combined with the above mentioned software. The same DMHF inclusion technique has been used also for the dissected male last sternite (= sternite IX) and female genital segment. Due to the different rendering, pictures made both in reflected and transmitted light are reported for the new species. The genitalia terminology follows, as much as feasible, that proposed by Brancucci (1980) and Liberti (2011: 152, 240). A reliable identification of females alone needs a microscopic examination of the genital segment.

Abbreviations for museum and private collections:

- MNCN: Museo Nacional de Ciencias Naturales, Madrid, Spain.
 MNHN: Muséum nationale d'Histoire naturelle, Paris, France.
 MSNM: Museo Civico di Storia Naturale, Milano, Italy.
 NHMB: Naturhistorisches Museum, Basel, Suisse.
 SDEI: Senckenberg Deutsche Entomologische Institut, Müncheberg, Germany.
 SMN: Staatliches Museum für Naturkunde, Stuttgart, Germany.
 ZSM: Zoologische Staatssammlung, München, Germany.
 CBa: personal collection Pablo Bahillo de la Puebla, Barakaldo-Bilbao, Spain.
 CCo: personal collection Robert Constantin, Saint-Lô, France.
 CKo: personal collection Andreas Kopetz, Amt Wachsenburg/OT Eischleben, Germany.
 CLi: personal collection Gianfranco Liberti, Uboldo, Italy (VA).
 CVa: personal collection Enrique Valenzuela, Frapas, Asturias, Spain.

Abbreviations for dimensional values:

TL = total length between the clypeus and the elytral apex; AL = antennal length, full extended; HW = head width including the eyes; IOW = inter-

ocular width; IAW = width between the antennal sockets; OL = greatest length of the eye in lateral view; PL = pronotum length; PW = pronotum width; EL = elytron length from humerus to apex; EW = elytra combined width at the base.

Results

Malthinus angustatus n. sp.

(Figs. 1b, 2b, 3a-b, j, 4a, 5b, 6)

Types:

HOLOTYPE ♂: **Spain**. SALAMANCA, Las Batuecas, Río Batuecas, 2 Km N de Las Mestas, 40°26'34" N - 6°08'37" W, 15.VI.1998, R. Constantin.

PARATYPES (25): **Spain**. 1 ♀, ÁLAVA, Labastida, 42°35'N - 2°00'W, 19.VI.2020, P. Bahillo (CBa); 1 ♂ 4 ♀, ÁVILA, Candeleda, 10 Km NW de El Raso, Puente del Pinillo, 40°10'37"N - 5°21'30"W, 550 m, 16.VI.2003, R. Constantin; 1 ♀, HUESCA, arboleda 5 Km NW de Ayerbe, 42°17'40"N - 0°43'44"W, 600 m, 7.VII.1997, R. Constantin, (CCo); 4 ♀, LA RIOJA, 5 Km N de Haro, Estación de San Felices, 42°37' N - 2°50' W, 465 m, 24.VI.2002, R. Constantin & G. Liberti (CCo, CLi); 2 ♀, LEÓN, Ponferrada [42°33'N - 6°34'W] «Ponferrada Paganetti // Sammlung Dr. K. Daniel» (ZSM); 1 ♀, LEÓN, «Ponferrada Paganetti (SMN); 1 ♀, *idem*, 1 Km NW de Rodanillo, 15 Km NW Bembibre, 42°38'N - 6°27'W, 1000 m, 10.VI.1999, R. Constantin (CCo); 1 ♂, NAVARRA, Irañeta, 42°55' N - 1°56'W, 6.VI.2005, K. Liebenow (CKo); 1 ♀, PALENCIA, 3 Km SW Baltanás, 41°56'N - 4°16'W, 830 m, 22.VI.2002, G. Liberti (CLi); 1 ♂, Villamuriel de Cerrato, 41°57'N - 4°31'W, 1.VI.2022, P. Bahillo (CBa); 3 ♂ 1 ♀, SALAMANCA, Peña de Francia, Fuente Paterno, 40°31'02" N - 6°09'24" W, 1370 m, 12.VII.1965, R. Constantin & S. Doguet (CCo, CLi);

Portugal. 1 ♀, BRAGANÇA, Serra de Montezinho, 5 Km W França, 41°54'36"N - 6°45'38"W, 800 m, 14.VI.2003, R. Constantin (CCo); 1 ♀, road Rabal-França, 41°53'N - 6°43'W, 640 m, 14.VI.2003, 1 ♀, R. Constantin.

The holotype will be deposited at the MNCN of Madrid. Paratypes in CBa, CCo, CKo and NHMB collections as above indicated in brackets.

Description:

Holotype ♂. Length 3.6 mm. Head black, from base of antennae to clypeal apex. Antennae black, the first antennomere yellow, the second brownish yellow. Pronotum black with peripheral light-yellow border: anteriorly narrow, wider basally and on basal half of lateral edges. Scutellum black. Elytra brown, each apex with a yellow macula. Fore- and middle-legs yellow, hind legs brown with base of femora, apex of tibiae and tarsi brownish yellow.

Head with eyes 1.5 times broader than pronotum. Clypeus rounded, not prominent. Frons and vertex thinly microreticulate and dull, the space between and behind the antennal insertions smooth and elevated. Temples long and convex, covered with yellow reclined setae.

Antennae slender, length about two thirds of the body. First antennomere elongate, slightly curved; II triangularly elongate; III-XI long and thin, sub-cylindrical. Pronotum 1.08 times longer than broad, slightly narrowed anteriorly, disc convex, microreticulate, strongly impressed near apical and basal corners and medially close to the base. Basal margin raised in a smooth rim. Elytra short, 2.23 times longer than basally wide (taken together), covering the basal three quarters of the wings, thinly and irregularly punctuate, covered with thin reclined light yellow setae.

Last sternite elongate, rhomboidal with narrow truncate tip (Fig. 4a). Aedeagus: sternal lobe widened before apex, distal edge with a rounded median tubercle; apical part of tegmen (aat) with a long median process; median lobe with two symmetrical membranous transverse expansions and a truncated distal edge which is emarginated in the middle (Fig. 3a-b, j).

Dimensions of holotype. TL: 3.6 mm; AL: 2.5 mm; HW: 0.78 mm; IOW: 0.48 mm; OL: 0.27 mm; IAW: 0.2 mm; PL: 0.55 mm; PW: 0.51 mm; EL: 1.58 mm; EW: 0.71 mm. Length of the antennomeres, in mm: *aI*: 0.40; *aII*: 0.23; *aIII*: 0.24; *aIV*: 0.24; *aV*: 0.23; *aVI*: 0.23; *aVII*: 0.22; *aVIII*: 0.22; *aIX*: 0.20; *aX*: 0.20; *aXI*: 0.22. Paratypes ♂♂: length 3.0–3.6 mm, mean 3.4 mm.

Paratypes ♀♀. Differ from male for less convex eyes, shorter antennae, different sternite VIII. TL 3.2–4.5 mm, mean 3.6 mm. Coxites: stylus 1.6–2.2 times (mean 1.9) longer than basally wide, tip narrowly rounded; basal fold distally enlarged (Fig. 5b).

Variability:

The female specimens from Bragança and La Rioja

are darker with head entirely black and reduced yellow peripheral border of pronotum.

Etymology:

The specific epithet refers to the narrowness of pronotum. A Latin adjective.

Differential diagnosis:

Malthinus angustatus n. sp. is close to *M. cincticollis* Kiesenwetter, 1866. It differs from the latter by: the strongly microreticulate vertex which is dull, without trace of longitudinal wrinkles behind the antennal insertions; the dull, smooth pronotum surface without trace of hammering; the aedeagus with wider sternal lobe and median lobe without apical expansions; the female coxites with blunt conical styli and wider basal fold.

***Malthinus capitatus* n. sp.**

(Figs. 1c, 2c, 3c-d, k, 4b, 5c, 6)

Types:

HOLOTYPE ♂: **Spain**. ÁVILA, Candelada, Nuestra Señora de Chilla, 40°11'N - 5°17'16"W, 810 m, 14.VI.1998, R. Constantin.

PARATYPES (20): 2 ♂, *same station and same date* (CCo); 4 ♂ 2 ♀, Candeleda, 10 Km NW de El Raso, Puente del Pinillo, 40°10'37"N - 5°21'30"W, 550 m, 16.VI.2003, R. Constantin (CCo); 1 ♀, 2 Km SE de Santa Cruz del Valle, 40°15'N - 4°59'W, 850 m, 17.VI.2003, R. Constantin (CCo); 1 ♂, ASTURIAS, Francos, Pesoz, 43°15'N - 6°52'W, 23.VII.2018, E. Valenzuela (CVa); 1 ♂, 28.VII.2018, E. Valenzuela (CVa); 2 ♂, San Cristóbal, Villanueva de Oscos, 43°21'N - 6°57'W, 17.VII.2018, E. Valenzuela (CVa); 1 ♂ 2 ♀, HUESCA, 2 Km W de Parzán, 42°39'N - 0°11'E, 21.VI.2006, G. Liberti & R. Constantin (CLi); 2 ♂ 2 ♀, SALAMANCA, Peña de Francia, Fuente Paterno, 40°31'N - 6°09'W, 1370 m, 12.VII.1965, R. Constantin & S. Doguet (CCo).

The holotype will be deposited at the MNCN of Madrid. Paratypes in CCo, CLi and CVa collections as above indicated in brackets.

Description:

Holotype ♂. Length 3.8 mm. Head black but yellow from base of antennae and inter-antennal space to clypeal apex. Antennae black except first, and base of second antennomeres, yellow. Pronotum blackish-

brown, peripheral light-yellow, thin border of uniform width all around. Scutellum and elytra chestnut brown, each apex with a yellow macula. Fore-, middle- and hind legs yellow.

Head with eyes 1.6 times broader than the pronotum. Clypeus rounded, not prominent. Frons and vertex densely and coarsely punctate, the narrow inter-antennal space smooth and flattened. Temples convex, covered with yellow reclined setae. Antennae slender, nearly three quarters as long as the body. First antennomere elongate, slightly curved; II apically wider; III-XI thinly subcylindrical. Pronotum 1.12 times longer than broad, feebly narrowed anteriorly and posteriorly, disc transversally convex, densely and coarsely punctate, slightly impressed near fore and rear corners as well as in the middle of the rear border. Basal margin raised like a smooth rim. Elytra 2.18 times longer than wide (taken together), shortened, covering the basal two thirds of the wings, shallowly and sparsely punctate, covered with thin reclined light-yellow setae. Last sternite elongate, wide in apical half, with truncate distal edge (Fig. 4b). Aedeagus: sternal lobe elongated, sides subparallel, distal edge truncate without median tubercle; apical part of tegmen with a developed median process; median lobe dorsally as a thin membranous tube notched almost to the base, apical edge rounded; internal sac as a long lamella ventrally recurved (Fig. 3c-d, k).

Dimensions of holotype. TL: 3.8 mm; AL: 2.7 mm; HW: 0.81 mm; IOW: 0.51 mm; OL: 0.26 mm; IAW: 0.2 mm; PL: 0.57 mm; PW: 0.51 mm; EL: 1.66 mm; EW: 0.76 mm. Length of the antennomeres, in mm: *aI*: 0.40; *aII*: 0.22; *aIII*: 0.21; *aIV*: 0.24; *aV*: 0.23; *aVI*: 0.22; *aVII*: 0.21; *aVIII*: 0.20; *aIX*: 0.20; *aX*: 0.19; *aXI*: 0.24. Paratypes ♂♂: length 3.2–3.8 mm, mean 3.4 mm.

Paratypes ♀♀. Differ from male for narrower head, which is 1.4 times wider than pronotum, shorter antennae, last visible sternite. Length 3.4–3.7 mm, mean 3.6 mm. Coxites: stylus 1.2–1.4 times (mean 1.3) longer than basally wide, tip triangular; basal fold wide (Fig. 5c).

Variability:

Some specimens have the anterior part of head (from antennal insertions to clypeus, which is usually yellow) slightly infusate.

Etymology:

The specific epithet refers to the cephalic rugulose integument. A Latin adjective.

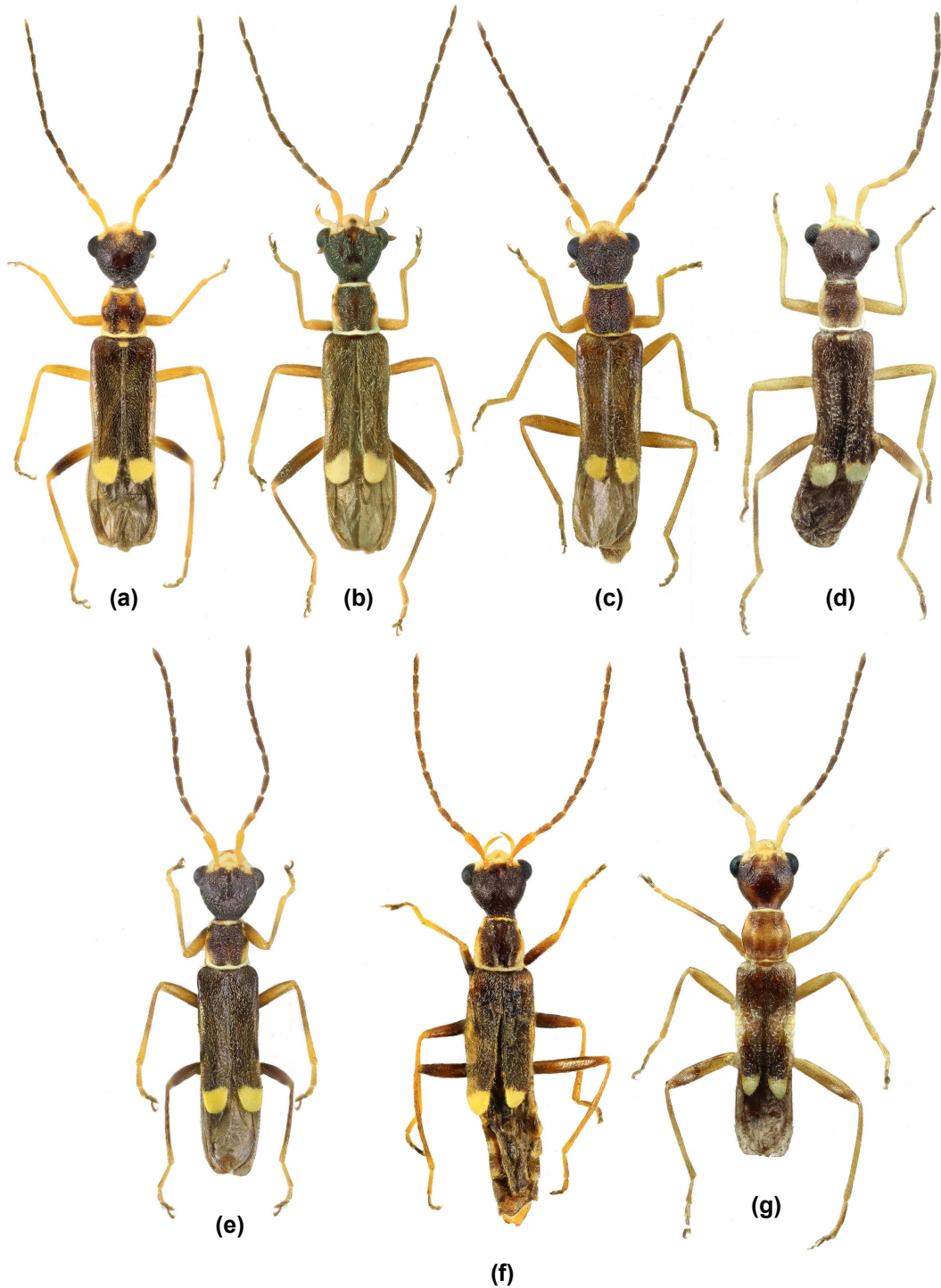


FIGURE 1. Habitus of *Malthinus*: (a) *M. cincticollis* Kiesenwetter; (b) *M. angustatus* n. sp.; (c) *M. capitatus* n. sp.; (d) *M. geigy* Wittmer; (e) *M. ornatus* Rosenhauer; (f) *M. cordobensis* Wittmer; (g) *M. kiesenwetteri* Brisout de Barneville.

Differential diagnosis:

Malthinus capitatus n. sp. is close to *M. cincticollis* Kiesenwetter, 1866. It differs from the latter for: coarse and dense punctuation of head and pronotum; pronotum less constricted anteriorly; lack of microreticulation on the forebody, appearing brighter; different aedeagus with the median lobe bearing, on dorsal side, the leaf-like laminae here supposed to be the extroverted internal sac; female coxites with wider basal fold.

***Malthinus cincticollis* Kiesenwetter, 1866**

(Figs. 1a, 2a, 3h, 5a, 6)

Lectotype here designated.

According to Kiesenwetter (1866), this species was described on specimens from Sommaraga in the Spanish Pyrenees collected by Seidlitz. This locality could not be found as it was misspelled. A publication indeed of G. Seidlitz (1867: p. 177), who collected the Kiesenwetter's type series, precisely mentions –dated 9.VII.1865– Zumárraga (Guipuzcoa), a village with a railway station between San Sebastián (Donostia) and Vitoria-Gasteiz. The Kiesenwetter collection of Malacodermata was unfortunately lost during the second world war. However the ZSM keep also the G. Seidlitz collection and, thanks to the kindness of Michael and Barbara Balke, seven specimens of *M. cincticollis* have been retrieved from ZSM and studied. Among several more recent material, a unique ♀ labelled «Hispan. 19 Sz [printed by collector] // cincticollis Kiesw. [ancient handwriting, possibly by Seidlitz] // cincticollis [recently handwritten] // Samml. v. Seidlitz» is here designated as lectotype of *Malthinus cincticollis* Kiesenwetter, 1866. A lectotype designation is necessary because two close species are present in the same region. The genital segments of this lectotype were examined and fit exactly with Fig. 5a, while the label «19 Sz» may refer to a numerical order of the localities visited by Seidlitz in 1865.

Wittmer (1971) examined specimens from Ponferrada, Calahorra, Alsasua.

Diéguez Fernández (2021: 24) reported six localities: ASTURIAS: Reserva de la Biosfera de Muniellos, Muniellos and La Viliella (citation by Diéguez Fernández *et al.* (2006: 252)); CÁDIZ: San Roque, J. Ramírez; GUIPÚZCOA: Irun, Arbiun–Askaingain, PN Aiako Harria, S. Pagola Carte; Pasaizarre, Oiartzun, PN Aiako Harria, I. Zabalegui; Elosua, Azkoitia, I. Zabalegui leg.

Material examined:

Portugal. COIMBRA, Pampilhosa da Serra, 40°03'N - 7°58'W, 14.VI.2009, 1 ♂ 2 ♀, R. Constantin; ÉVORA, Estremoz, Serra da Ossa, 38°43'N - 7°35'W, 17.V.1974, 1 ♂ 2 ♀, W. Wittmer (NHMB); GUARDA, 3 Km N de Famalicao, 40°26'N - 7°22'W, 16.VI.1998, 3 ♀, R. Constantin; Serra da Estrela, 6 Km S de Manteigas, 40°20'N - 7°34'W, 1250 m, 16.VI.1998, 3 ♀, R. Constantin.

Spain. ÁLAVA, Murgia, Puerto Altube, 42°58'N - 2°58'W, 16.VI.2015, 1 ♀, I. Alonso (CBa); ALMERÍA, Bayárcal, 1 Km N hacia Puerto de La Ragua, 37°02'N - 3°0'W, 5.VI.1997, 3 ♂, R. Constantin; ASTURIAS, Covadonga, 43°19'N - 5°03'W, 6.VII.1964, 1 ♂ 1 ♀, R. Constantin (citation by Constantin (1965)); Nueva, 43°26'N - 4°56'W, 15.VII.1970, 17 ♂ 15 ♀, W. Wittmer (NHMB); ÁVILA, Candeleda, Nuestra Señora de Chilla, 40°11'N - 5°17'W, 14.VI.1998, 2 ♂, R. Constantin; *idem*, 16.VI.2003, 1 ♂ 3 ♀, R. Constantin; BIZKAIA, Bilbao, 25.VI.2001, 1 ♂, H. Hebauer (SMN); Sopuerta, Barranco de Alen, 43°16'N - 3°12'W, 26.VI.2020, 1 ♀, P. Bahillo (CBa); Bermeo, Mte Burgoa, 43°25'N - 2°45'W, 7.VI.2019, 1 ♀, I. Alonso (CBa); Bermeo, Muskerritzu, 43°25'N - 2°44'W, 16.VII.2013, 1 ♀, P. Bahillo (CBa) (citation by Bahillo de la Puebla and Alonso Román (2016)); Forua, Ermita de Triñe, 43°20'N - 2°40'W, 3.VII.2014, 1 ♀, P. Bahillo (CBa) (citation by Bahillo de la Puebla and Alonso Román (2016)); Zugaztieta, Ermita de Santa Luzia, 43°23'N - 2°49'W, 18.VI.2014, 1 ♀, P. Bahillo (CBa) (citation by Bahillo de la Puebla and Alonso Román (2016)); Bakio, Ermita de San Miguel, 43°25'N - 2°45'W, 30.VI.2022, 1 ♀, I. Alonso, (CBa); CÁDIZ, Puerto de Ojén-Facinas, 15 Km N de Tarifa, 36°09'N - 5°39'W, 14.V.2002, 3 ex, R. Constantin; San Roque, Pinar del Rey, 36°15'N - 5°24'W, 7.V.2004, 3 ♂ 12 ♀, R. Constantin; CANTABRIA, Laredo, 43°23'N - 3°23'W, 3.VII.1964, 2 ♂ 2 ♀, R. Constantin (citation by Constantin (1965)); Espinama, Fuente Dé, 1100 m, 43°08'N - 4°48'W, 21.07.1964, 2 ♀, R. Constantin (citation by Constantin (1965)); GRANADA, Puebla de Don Fadrique, La Vidriera, 37°49'N - 2°32'W, 10.VI.1999, 2 ♀, R. Constantin; Sierra de La Sagra, Santiago de Espada, 37°59'N - 2°35'W, 10.VI.1999, 1 ♂ 1 ♀, R. Constantin; HUELVA, Sierra de Aracena, 1 Km S de Jabugo, 37°54'N - 6°43'W, 6.VI.1999, 2 ♀, R. Constantin; LA CORUÑA, Porto do Barqueiro, carretera de Mañón, 43°39'N - 7°44'W, 23.VII.1982, 5 ♂ 20 ♀, R. Constantin; LEÓN, Ponferrada, 42°33'N - 6°34'W, G. Paganetti, 2 ♂ 3 ♀ (NHMB); LUGO, Serra de Ancares, Noceda, Peñarubia, alt. 800 m, 42°46'N - 6°56'W, 10.VII.1964, 1 ♂ 1 ♀, R. Constantin (citation by Constantin (1965)); Ligonde, 42°51'N - 7°46'W, 9.VIII.2015, 2 ♂ 1 ♀, P. Bahillo (CBa); Triacastela, 42°45'N - 7°14'W, VII. 1956, M. González (NHMB); MÁLAGA, Estepona, 2 Km S del Puerto de Peñas Blancas, 36°30'N - 5°11'W, 7.VI.1999, 2 ♂ 2 ♀, R. Constantin; PALENCIA, Calahorra [de Boedo], 1 ♂ (NHMB); TOLEDO, bosque 4 Km N de Robledo del Mazo, 39°38'N - 4°54'39''W, 13.VI.1998, 1 ♂, R. Constantin. Specimens preserved in CCo when no other mention.

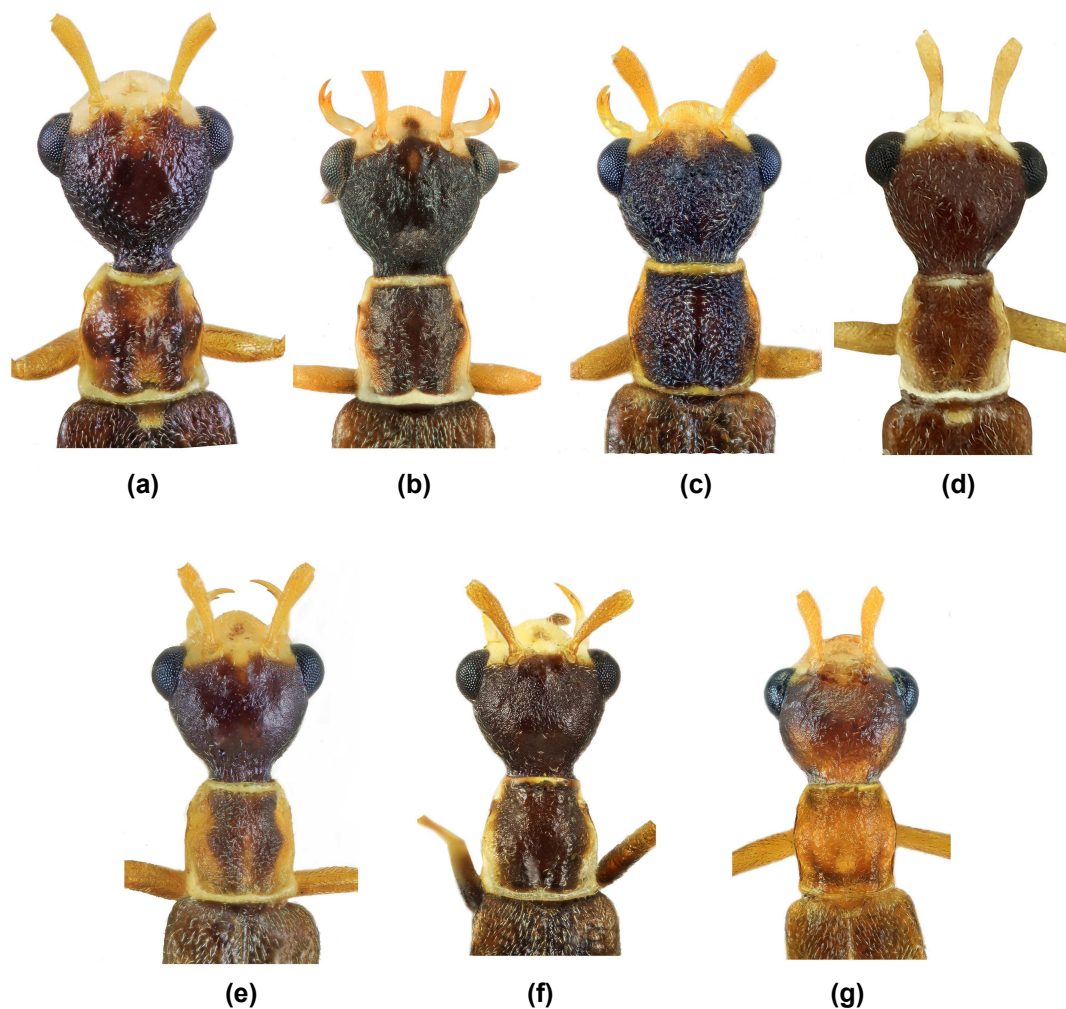


FIGURE 2. Head and pronotum of *Maltinus*: (a) *M. cincticollis* Kiesenwetter; (b) *M. angustatus* n. sp.; (c) *M. capitatus* n. sp.; (d) *M. geigyi* Wittmer; (e) *M. ornatus* Rosenhauer; (f) *M. cordobensis* Wittmer; (g) *M. kiesenwetteri* Brisout de Barneville.

Additional description:

Male. Last sternite elongate, rhomboidal in apical half, with narrow, slightly emarginate distal edge (Wittmer, 1971: fig. 36). Aedeagus: sternal lobe progressively widened towards the apex, distal edge with reduced median tubercle; apical part of tegmen with a long median process; median lobe with parallel

edges in basal part, apical part enlarged on each side forming two triangular membranous expansions (Fig. 3h).

Female coxites: styli slender and pointed, 1.4–2 times (mean 1.7) longer than basally wide; basal fold of coxites transversely narrow, elongate and thin in the innermost part (Fig. 5a).

***Malthinus cordobensis* Wittmer, 1971**

(Figs. 1f, 2f, 3f, 5d, 6)

Described on a single specimen from Córdoba, male holotype housed at NHMB.

Other material examined:

Spain. CIUDAD REAL, Pozuelo [de Calatrava, J.M. Fuente], ex coll. A. Carret, 1 ♂ 1 ♀ (CCo); *idem*, Pozuelo, J.M. Fuente, 1 ♂ (NHMB); CÓRDOBA, Sierra de Córdoba, 10 Km N de Córdoba, 37°57'N - 4°48'W, 20.V.1990, 1 ♀, M. Baena (CCo); 3 Km W de Santa María de Trassierra hasta Río Guadiato, 37°57'N - 4°57'W, 400 m, 1.VI.1997, 1 ♀, R. Constantin & M. Baena (CCo); *same locality*, 12.V.2004, 1 ♂ 2 ♀, R. Constantin (CCo); GRANADA, Deifontes, Sierra de Arana, 37°19'N - 3°33'W, 650 m, 2.VI.1971, 1 ♂, H. Aspöck (NHMB); MÁLAGA, 2 Km S de Algotocín, 36°34'N - 5°15'W, 500 m, 7.VI.1999, 1 ♂ 3 ♀, R. Constantin (CCo); SEVILLA, Utrera, 1 ♂ 1 ♀ (NHMB).

Additional description:

Holotype dimensions. TL: 3.2 mm; AL: 2.0 mm; HW: 0.64 mm; IOW: 0.40 mm; OL: 0.21 mm; IAW: 0.1 mm; PL: 0.43 mm; PW: 0.42 mm; EL: 1.7 mm; EW: 0.56 mm. Length of the antennomeres, in mm: *aI*: 0.27; *aII*: 0.18; *aIII*: 0.18; *aIV*: 0.18; *aV*: 0.19; *aVI*: 0.18; *aVII*: 0.17; *aVIII*: 0.17; *aIX*: 0.16; *aX*: 0.16; *aXI*: 0.17.

Male. Last sternite feebly elongate, rhomboidal in apical half, with narrow, triangularly emarginate distal edge (Wittmer, 1971: fig. 39). Aedeagus: sternal lobe enlarged before the distal third, distal edge truncate with a median tubercle; apical part of tegmen with a long median process; median lobe with latero-apical elongated expansions on each side, distal edge with two lateral rounded extensions and a dorsally excavated median protuberance (Fig. 3f).

Females. Externally identical to male in head dimensions, antennae and pronotum. Coxites: stylus elongate 1.6 times longer than basally wide with blunt tip; basal fold of coxites transversely elongate and wider in the innermost part (Fig. 5d).

***Malthinus geigy* Wittmer, 1971**

(Figs. 1d, 2d, 3e, 6)

Described on two specimens from **Spain**. Holotype ♂ is labelled «Hispania // Kiesenwetter / via Cl Müller / Staudiger» (NHMB). 1 ♂ paratype with the same labels (NHMB). Wittmer examined also, not included in the type series, five specimens labelled

«Hispania» (SDEI, NHMB) and three specimens from TERUEL, Puebla de Valverde, 4.VII.1911 (ZSM).

Remark:

This species has no known type-station. Indeed Wittmer designated as holotype a specimen acquired by R. Hicker from the insect dealer Staudinger, with a printed label «Hispania» as the only indication of origin.

Material examined:

Holotype ♂ and paratype ♂ (NHMB) were examined and paratype re-mounted for illustration.

Additional description:

Dimensions of holotype. TL: 3.5 mm; AL: 2.3 mm; HW: 0.64 mm; IOW: 0.43 mm; OL: 0.24 mm; IAW: 0.2 mm; PL: 0.50 mm; PW: 0.45 mm; EL: 1.5 mm; EW: 0.66 mm. Length of antennomeres, in mm: *aI*: 0.39; *aII*: 0.20; *aIII*: 0.21; *aIV*: 0.20; *aV*: 0.20; *aVI*: 0.20; *aVII*: 0.19; *aVIII*: 0.18; *aIX*: 0.18; *aX*: 0.17; *aXI*: 0.17.

Male. Last sternite lamellar, abruptly narrowed in posterior third, apical edge truncated and slightly emarginate (Wittmer, 1971: fig. 38). Aedeagus: sternal lobe widened in the middle, distal edge truncated with a small median tubercle; apical part of tegmen with a long, thin median process; median lobe with latero-apical edges forming oblique lips; lateral edges bearing at mid-distance a triangular membranous expansion and presence of two symmetrical, round, internal expansions (Fig. 3e).

Female unknown.

Differential diagnosis:

Malthinus geigy is so closely related to *M. cordobensis* that Wittmer (1971: figs. 8, 38) did not provide a full description for the latter, but only illustrations of the male last sternite and aedeagus. The examination of these two species confirms the great morphological similarity.

However, two external differential characters can be observed. *Malthinus geigy* has a slightly more elongated pronotum and the last visible ♂ sternite which is strongly narrowed in its distal third whereas *M. cordobensis* has a shorter pronotum and the last visible sternite is rhomboidal in distal half, with narrow, triangularly emarginate distal edge. Male genitalia of the two species are also quite different (compare Figs. 3e and 3f). Please refer to Wittmer (1971: figs. 8, 9) for the outstanding drawing of their aedeagi made by Marianne Hungerbühler. *M. geigy* has the distal

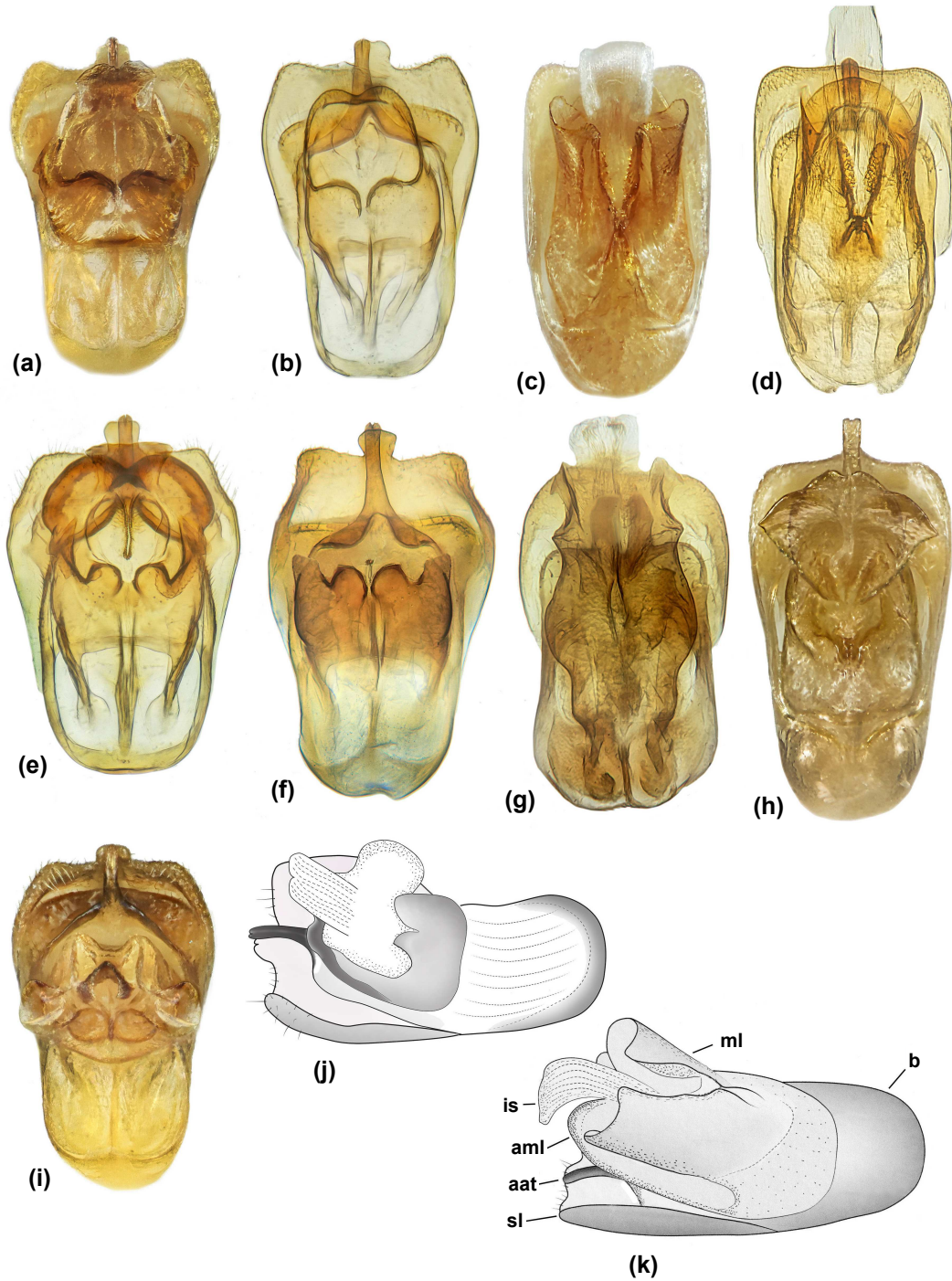


FIGURE 3. Male genitalia of *Malthinus*: (a)-(b), (j) *M. angustatus* n. sp.; (c)-(d), (k) *M. capitatus* n. sp.; (e) *M. geigy* Wittmer; (f) *M. cordobensis* Wittmer; (g) *M. kiesewetteri* Brisout de Barneville; (h) *M. cincticollis* Kiesenwetter; (i) *M. ornatus* Rosenhauer / (a), (c), (h)-(k) Reflected light; (b), (d)-(g) Transmitted light / (a)-(i) Dorsal view; (j)-(k) Dorso-lateral view (Abbreviations: *aat* = apical apophyse of tegmen; *aml* = apex of median lobe; *b* = base of tegmen (phallobase); *is* = internal sac (endophallus); *ml* = median lobe; *sl* = sternal lobe).

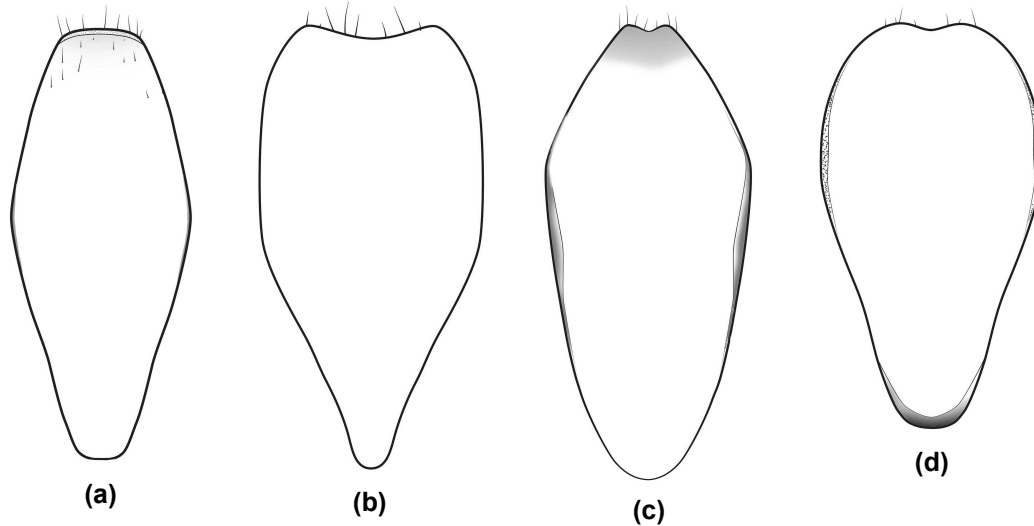


FIGURE 4. Male last sternite of *Malthinus*: (a) *M. angustatus* n. sp.; (b) *M. capitatus* n. sp.; (c) *M. ornatus* Rosenhauer; (d) *M. kiesenwetteri* Brisout de Barneville.

edge of the median lobe rounded, emarginate in the middle and the latero-apical margins raised into a rim, whereas *M. cordobensis* has the distal edge of the median lobe extended (towards center) by a median tubercle and (on external side) by a leaf-like expansion.

***Malthinus kiesenwetteri* Brisout de Barneville, 1863**

(Figs. 1g, 2g, 3g, 4d, 6)

Described by Brisout de Barneville (1863) from France, Pyrénées-Orientales: Collioure, A. Grenier. No types examined. It is a rare species, later found by H. Normand in the same locality. Wittmer (1971) mentioned this taxon but did not provide illustrations.

Other material examined:

France. PYRÉNÉES-ORIENTALES, Collioure, H. Normand, 2 ♂, coll. A. Carret > CCo; *idem*, 1 ♂ (NHMB); Collioure, VI.1903, Normand, 1 ♂, G. Liberti det. (MSNM); Banyuls, labelled «Hispania [*sic*], Pyr.or / Bagnuls / col. Richard Hicker-Wien», 1 ♂ (NHMB).

Additional description:

Male last sternite racket-shaped, the apical half broad, oval, the apical margin rounded and slightly emargin-

ated in the middle (Fig. 4d). Aedeagus: sternal lobe with parallel sides, truncated apical edge without median bulge, apical part of tegmen devoid of median sclerotised process, replaced by a pair of paramedian recurved lamellae; median lobe without membranous expansions; internal sac cylindrical and with apico-lateral extensions when developed (Fig. 3g).

Female unknown.

Differential diagnosis:

This species diverges from the *M. ornatus* group by the sternal lobe without a short bulge in the middle and by the apical shape of median lobe.

***Malthinus ornatus* Rosenhauer, 1856**

(Figs. 1e, 2e, 3i, 4c, 5e, 6)

Described from Sierra Nevada and collected by the author Wilhelm Rosenhauer in July.1849 (Rosenhauer, 1856). The specimens here studied perfectly correspond to the original description which also mentions the notched last male sternite apex, an important specific character. No type presently seen though possibly hosted in MNHN, collection Rosenhauer «Thiere Andalusiens» via coll. Oberthur.

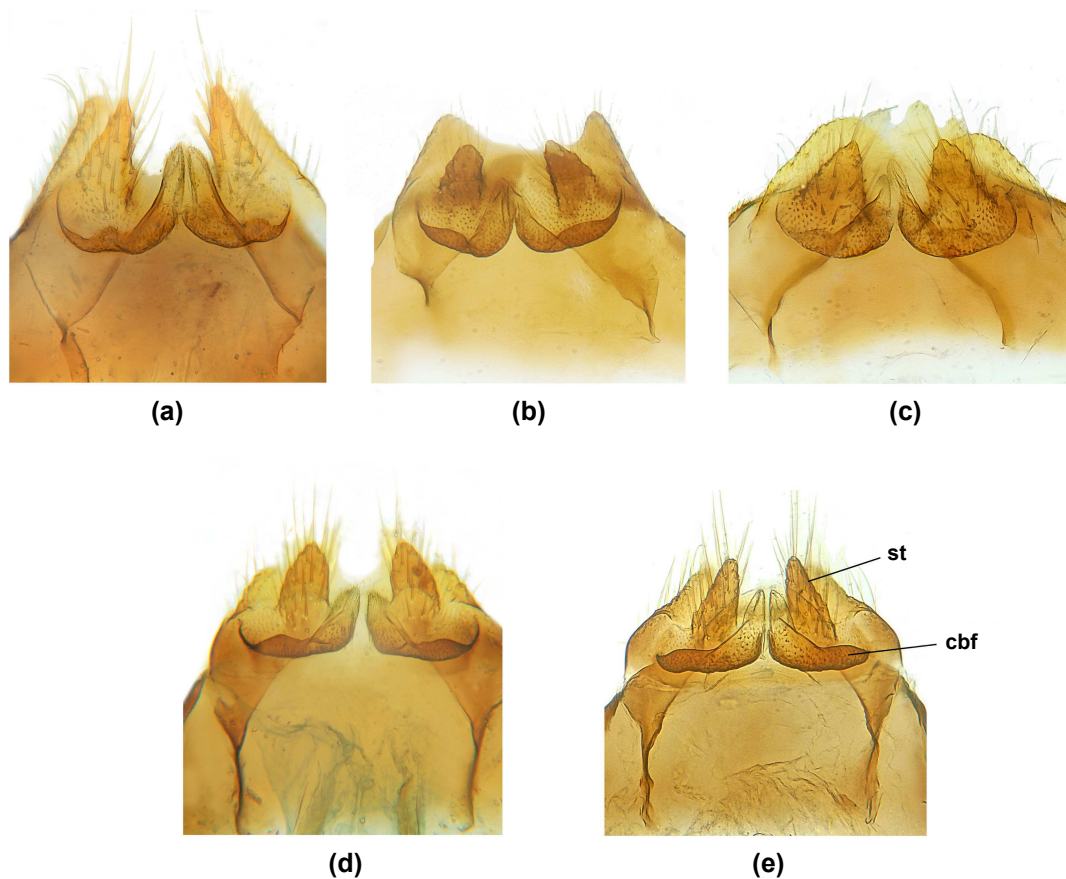


FIGURE 5. Female coxites of *Malthinus*: (a) *M. cincticollis* Kiesenwetter; (b) *M. angustatus* n. sp.; (c) *M. capitatus* n. sp.; (d) *M. cordobensis* Wittmer; (e) *M. ornatus* Rosenhauer (Abbreviations: *cbf* = coxite basal fold; *st* = stylus).

Wittmer (1971) reports to have studied specimens from Estepona, Alto de San Pedro, Jaén and La Almoraima [36°16'N - 5°26'W], 27.IV.1895 (SDEI).

Other material examined:

Spain. CÁDIZ, 20 Km NW of Tarifa, Hill 3 Km N of Bolonia, 36°06'26"N - 5°46'10"W, 8.V.2004, 1 ♂ 3 ♀, R. Constantín; Playa Bolonia, 36°05'40"N - 5°45'57"W, 8.V.2004, 1 ♂ 1 ♀, R. Constantín; Tarifa, III.1992, 1 ♂, C. Beyer (SNM); Benamahoma, Sierra del Pinar, 36°46'N - 5°27'W, 550 m, 27.V.1971, 1 ♂, H. Aspöck (NHMB); HUELVA, La Palma del Condado 14 Km SW, 37°27'N - 6°37'W, 20.IV.2017, 1 ♂, P. Bahillo (CBa); JAÉN, Jaén, 21.VI.1911 (ZSM); MÁLAGA, Benahavis, Alto de San Pedro, 36°31'N - 5°02'W, 16.VI.1966, 1 ♀, W. Wittmer (NHMB); Estepona, 16.VI.1966, 1 ♀, W. Wittmer (NHMB).

Portugal. FARO, 10 Km N de Portimão a Serra de Monchique, 37°14'N - 8°32'W, 100 m, 27.III.1967, 11 ♂ 8 ♀, R. Constantín (CCo); *idem*, 6.V.1974, 2 ♂ 2 ♀, W. Wittmer (NHMB); Vila do Bispo-Sagros, 37°03'N - 8°55'W, 5.V.1974, 4 ♂ 4 ♀, W. Wittmer (NHMB); *idem*, Bensafrim, Barragem da Bravura, 37°12'N - 8°41'W, 8.IV.1996, 1 ♂, K. den Bieman (SMN); VIANA DO CASTELO, Caminha, 41°50'N - 8°44'W, 1 ♀, J. Messutat (SMN).

Additional description:

Male last sternite approximately rhomboid-shaped, apical half narrowed, apical margin rather narrow with a triangular indentation (Fig. 4c). Aedeagus: sternal lobe widened before apex, apical edge truncate with a short, rounded median bulge; apical part of tegmen with a developed median process (*aat*); median lobe

with lateral edge bearing an ear-shaped membranous expansion in the middle and its apex divided into a pair of lamellae oriented in a sagittal plane; internal sac looking as a triangular lamella (Fig. 3i).

Females. Styli elongate with blunt tip, 2 times longer than basally wide; coxite basal folds transversely slender, distally triangular and narrow (Fig. 5e).

Key to the species of *Malthinus ornatus* group:

♂ : last visible sternite in the shape of a narrow, elongate lamella.

♀ : last visible sternite transverse, as wide as the previous one, with apical edge narrowly incised medially.

- (1) Pronotum as long as wide, feebly constricted anteriorly. Head and pronotum shining, rugulose, strongly wrinkled, vertex with broad confluent punctation, without microreticulation (Fig. 2c). ♂, aedeagus (Fig. 3c-d). ♀, stylus short; basal fold wide, triangular (Fig. 5c) **capitatus n. sp.**
 – Pronotum longer than wide, markedly constricted anteriorly **2**
- (2) Head shining, finely punctate, weakly microreticulate, vertex with median smooth zone and longitudinal wrinkles behind the antennal sockets. Pronotum shiny, with irregular, wrinkled surface, with yellow lateral border enlarged near the rear corners. Head brown, pronotum and elytra yellowish brown (Fig. 2a). ♂, aedeagus (Fig. 3h). ♀, stylus long, conical and pointed; basal fold thin in the innermost part (Fig. 5a) **cincticollis Kiesenwetter, 1866**
 – Head lacking lustre, coarsely punctate. Yellow border of pronotum thin or reduced, not enlarged into a preapical macule **3**
- (3) Pronotum surface smooth, not bumpy but strongly microreticulate **4**
 – Pronotum surface irregular, bumpy, weakly or not microreticulate **5**
- (4) Pronotum brown, with dull microreticulation, the yellow peripheral border narrow, reduced on anterior half. Vertex black brown, with smooth median elevation, slightly depressed behind the antennal sockets (Fig. 2b). ♂, aedeagus (Fig. 3a-b). ♀, stylus long, conical with rounded tip; basal fold distally wide (Fig. 5b) **angustatus n. sp.**
 – Pronotum russet, with bright microreticulation, yellow peripheral border narrow and limited to the apical and basal margins, absent on the sides. Vertex russet brown, without median elevation. ♂, aedeagus: apex of sternal lobe without median tubercle; apex of tegmen with a pair of paramedian lamellae (Fig. 3g). ♀ unknown **kiesenwetteri Brisout de Barneville, 1863**
- (5) Head black behind the antennal sockets and, behind eyes, necked with straight temples. Lateral yellow border of pronotum narrow (less than 1/6 of pronotal width). Scutellum brown. ♂, apex of last sternite with narrow triangular notch; aedeagus (Fig. 3i). ♀, stylus elongate with blunt tip; basal fold distally narrow (Fig. 5e) **ornatus Rosenhauer, 1856**
 – Head entirely rusty brown to fulvous and, behind eyes, necked with convex, arched temples. Lateral yellow border of pronotum wider (about 1/6 of pronotal width). Scutellum yellow **6**
- (6) Pronotum 1 to 1.15 times (average 1.09 times) longer than wide (slightly elongate). ♂, apex of last sternite wide, emarginate; aedeagus (Fig. 3f). ♀, apex of stylus rounded; basal fold wide (Fig. 5d) **cordobensis Wittmer, 1971**
 – Pronotum 1.14 to 1.2 times (average 1.17 times) longer than wide (moderately but visibly elongate). ♂, apex of last sternite narrowed; aedeagus (Fig. 3e). ♀ unknown **geigyii Wittmer, 1971**

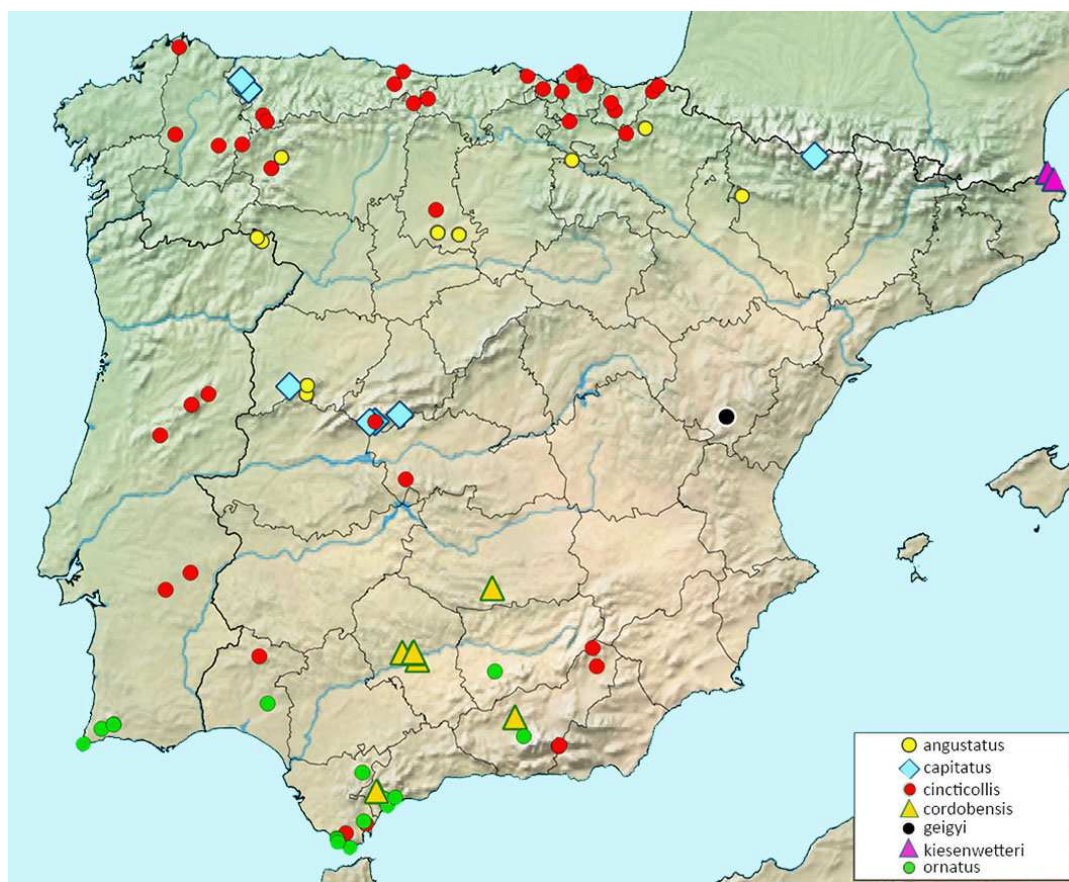


FIGURE 6. Distribution map of seven species of the *Malthinus ornatus* group.

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