

Pseudothryptus, a new genus of Limnichidae (Coleoptera) for *Cacchothryptus multiseriatus*

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HERNANDO, C. & RIBERA, I. 2005. *Pseudothryptus*, a new genus of Limnichidae (Coleoptera) for *Cacchothryptus multiseriatus*. *Entomol. Probl.* 35(2): 131–135. – *Pseudothryptus* gen.nov. is described for the species *Cacchothryptus multiseriatus* CHAMPION, from India. The new monotypic genus belongs to a clade of Limnichidae formed by the genera *Cacchothryptus* SHARP, *Euthryptus* SHARP, *Resachus* DELÈVE, *Simplocarina* PIC and *Mandersia* SHARP, mainly characterized by a non-articulated aedeagus with fused parameres. Within this group relationships are still unresolved, but *Pseudothryptus* new genus can be separated from *Cacchothryptus* by its very convex shape, head with very deep supra-ocular sulcus and anterior margin of pronotum excavated for reception of antennae; presence of regular series of elytral punctures; short pubescence; carinated hypomera; last abdominal sternite emarginated; aedeagus with lateral parameres; symmetrical base of the aedeagus, with dorsal ductus. It can be separated from *Mandersia* and *Euthryptus* (to which seems to be closely related) by the strong regular rows of punctures covering all elytra, which have a double pubescence; presence of a longitudinal apical sulcus in the median lobe; symmetrical phallobase and the shape of the genital segment.

Key words: Coleoptera, Limnichidae, Limnichinae, *Cacchothryptus*, *Mandersia*, *Pseudothryptus*, new genus, Oriental region.

Introduction

The genus *Cacchothryptus* SHARP (Coleoptera, Limnichidae, Limnichinae) was erected for a single species from Borneo, *C. compactus* SHARP (SHARP 1902). In a subsequent series of works, (PIC 1922, 1923, 1928) described the genus *Macrobyrrhinus* and included in it four new species (*M. rouyeri* PIC, *M. maculosus* PIC, *M. punctatus* PIC, and *M. laosensis* PIC). This genus was considered to be a synonym of *Cacchothryptus* by CHAMPION (1923), who in the same paper described another three species: *C. testudo* CHAMPION, *C. ripicola* CHAMPION and *C. multiseriatus* CHAMPION. However, PIC ignored this synonymy and continued to describe species in *Macrobyrrhinus* (PIC 1928). The male and female genitalia of the genus *Cacchothryptus* was first figured by DELÈVE (1971), in a redescription of *C. rouyeri*. WOOLDRIDGE (1990) designated the lectotypes of the species described by SHARP (1902) and CHAMPION (1923). There are no further mentions of this genus in the literature until PÜTZ (1998), who included some species in a checklist of the Limnichidae of China and adjacent countries.

During a revision of *Cacchothryptus* (HERNANDO & RIBERA manuscript in preparation), it became evident that the leaving *C. multiseriatus* within the genus would render it para- or polyphyletic, as it did not share its putative synapomorphies, based on the described (including those in *Macrobyrrhinus*) plus several undescribed species (e.g. apex of the aedeagus deeply incised, see below). In consequence, we erect a new genus for it, *Pseudothryptus*

gen.nov. We also include a redescription of *Cacchothryptus* and a characterisation of the group of genera in which both taxa are included.

Cacchothryptus SHARP, 1902

(Figs 3, 4–7)

Cacchothryptus SHARP, 1902: 63 (type species *Cacchothryptus compactus* SHARP, by monotypy)

Macrobyrrhinus PIC, 1922: 4 (type species *M. rouyeri* PIC by monotypy). Synonymy in CHAMPION (1923: 222)

Description. Length 2.5–5.5 mm. Body oval, elongated; apex of elytra acuminate, depressed in lateral view. Colour brown to black. Body covered with a very dense and regular double pubescence; short recumbent setae (i.e. strongly declined at base and more or less adpressed to the surface, LESCHEN et al. 2005) and forming a zig-zag design; long setae erect, but not perpendicular to surface. Colour of pubescence variable, depending on angle of incidental light.

Head partially inserted in pronotum, which is excavated for its reception. Dorsal margin of eye bordered, in some species forming a small sulcus not reaching posterior edge of eyes, with a small denticle by insertion of antennae. Fronts without sulci. Antennae long and slender, longer than posterior margin of pronotum; entirely pubescent; 11 segmented, 1st antennomere small and globular, 2nd to 10th elongated, apex slightly asymmetrical, 11th laterally truncated. Last segment of maxillary palpi truncated.

Pronotum transverse, posterior margin slightly sinuate, lateral and front margins bordered. Surface densely punctured, surface among punctures smooth and shiny. Without excavations for reception of antennae. Scutellum subtriangular, slightly curved laterally.

Base of elytra convex, margin of elytra strongly bordered; with traces of irregular striae; surface with dense puncturation; space between punctures smooth and shiny.

Ventral surface with deep excavations for reception of legs. Thoracic hypomera at a different level, separated by carinae. Apex of prosternal process blunt and strongly inserted in mesosternite. Base of eplipleura excavated for reception of mesofemora, narrowing from first abdominal segment to apex. Mesosternite slightly convex, with a longitudinal sulcus weakly impressed in the middle, surface covered by sparse puncturation. First three abdominal sternites connate, with sparse puncturation, slightly denser on margins. Last abdominal sternite not emarginated (Fig. 3). Legs long and slender, femora excavated for reception of tibiae.

Sexual Dimorphism. Males: in some species with asymmetric protarsal claws. Medial part of 4th sternite of all species, and lateral part of 5th sternite of some species, covered by glandular pores (only visible with compound microscope) (Fig. 3). Last abdominal sternite rounded.

Aedeagus not articulated, strongly sclerotised, elongated, cylindrical. Parameres ventral to median lobe, forming a lamina with an apical emargination (Figs 4–5). Median lobe as long or longer than parameres, with a medial longitudinal sulcus of variable length (Fig. 5). Base of aedeagus asymmetrical, ductus lateral; strouts long, slightly dilated at apex, fused at base (Fig. 4). Tegmen fused with base of parameres. Genital segment (9th sternite) with base reduced, shorter than parameres; lamina well sclerotised, with defined edges (Fig. 6). 8th sternite U-shaped, regularly curved (Fig. 7).

Females: last abdominal sternite slightly acuminate. Ovipositor long; gonocoxites with strongly acuminate apex, some species with a small dorso-basal denticle. Spiculum ventrale as long as ovipositor; manubrium (i.e. 8th sternite) long, distal plaque membranous, anterior margin with series of small setae, with two lateral expansions.

Ecology. Species of *Cacchothryptus* are generally collected under bark in water-logged accumulations of dead wood on the shores of small forest streams, sometimes at a certain distance from the water. They fly readily (M. JÄCH, personal communication, 2002).

Distribution. The genus is distributed mostly in the Oriental region, with some species reaching the southern part of the eastern Palaearctic region.

***Pseudothryptus* gen.nov.**

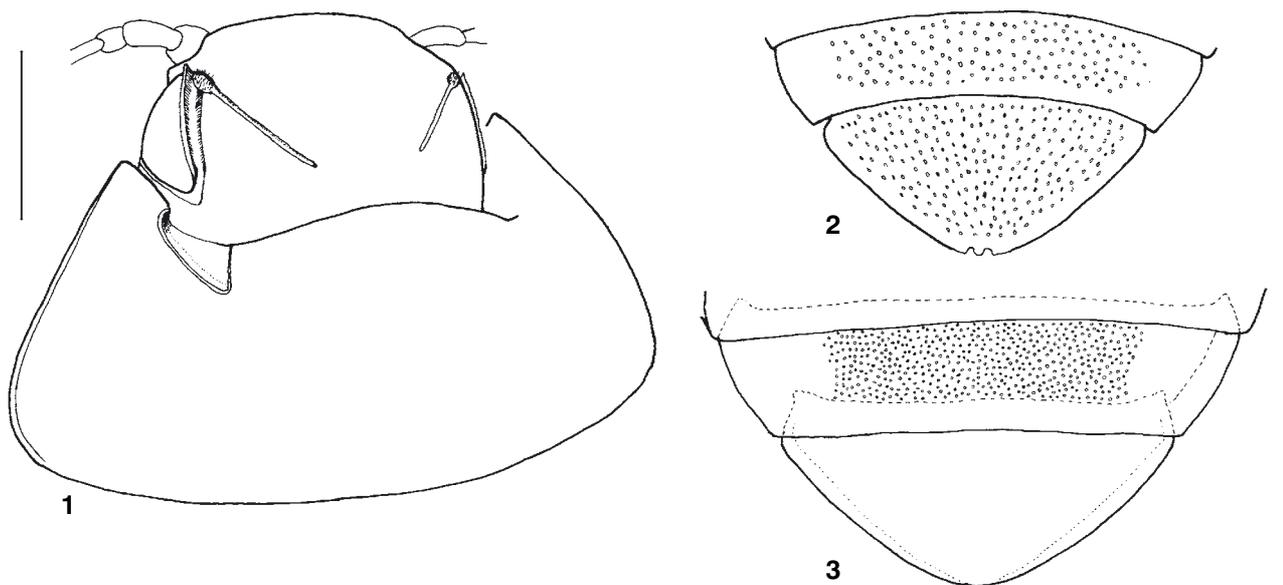
(Figs 1–2, 8–11)

Type species *Cacchothryptus multiseriatus* CHAMPION 1923: 224. Gender masculine

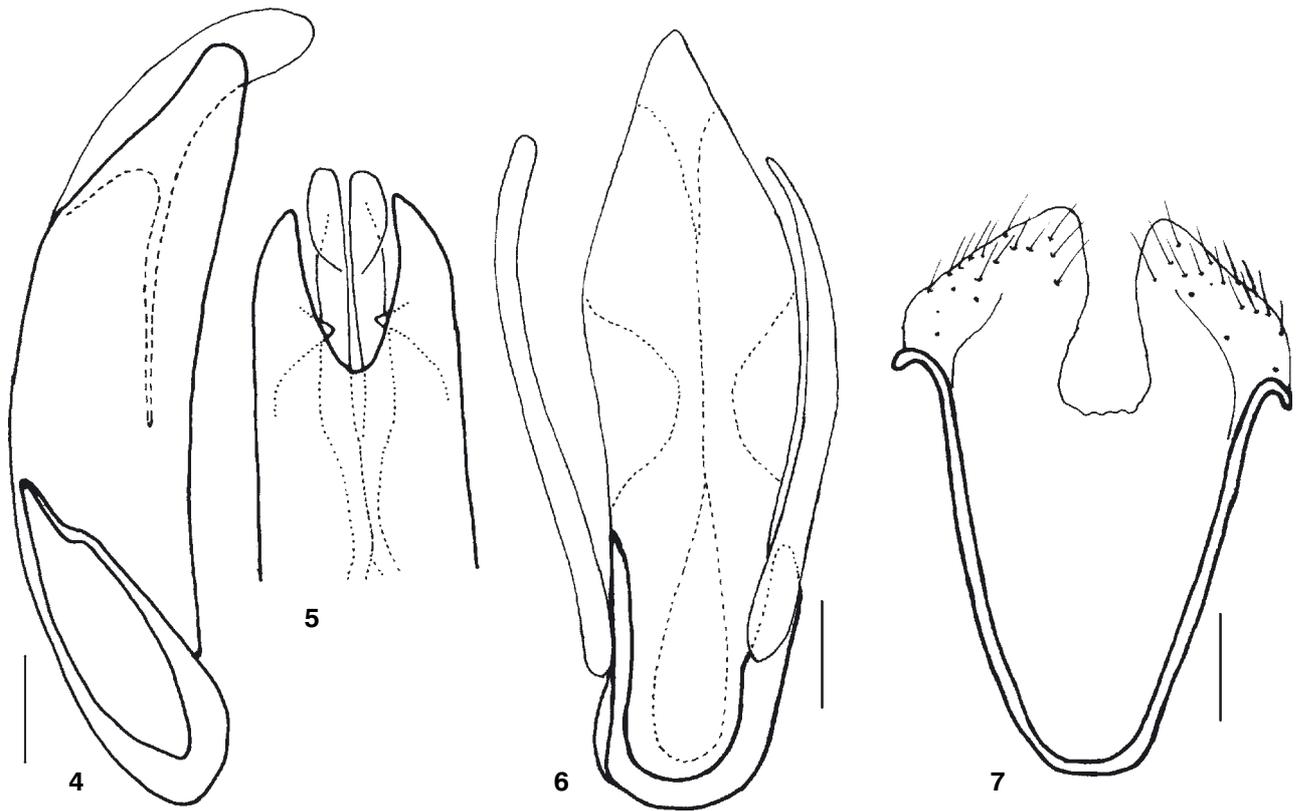
Description. Same as *P. multiseriatus* (see below).

***Pseudothryptus multiseriatus* (CHAMPION) comb.nov.**

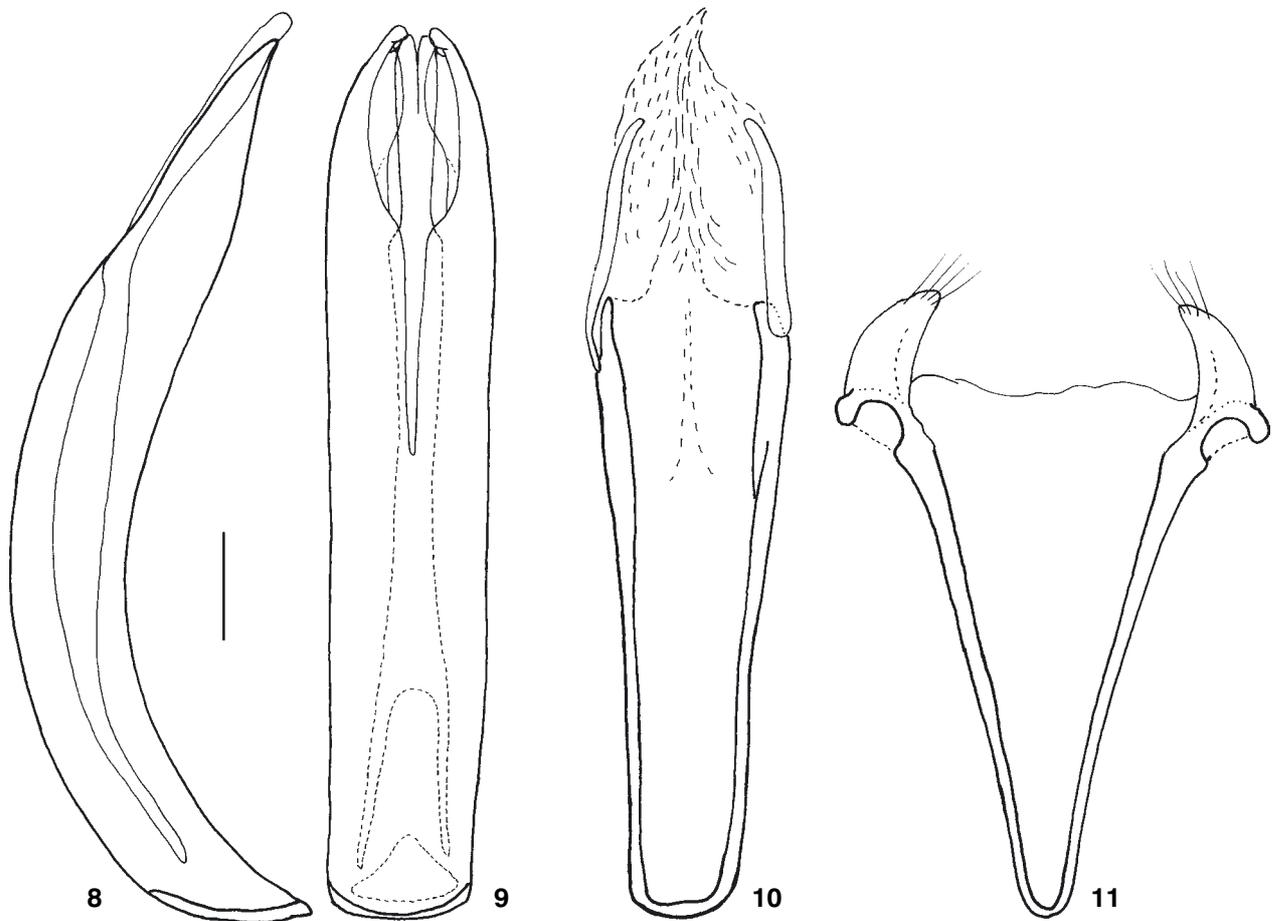
Type material: **Lectotype** ♂ (Natural History Museum, London), examined: “LECTOTYPE”; “TYPE / H. T.”; “SYNTYPE”; “*Cacchothryptus* / *multiseriatus* / Type” [hw]; “Bengal / E. Douars / H. Stevens”; “H. Stevens / Brit. Mus. / 1922-307.”; “*Cacchothryptus* / *multiseriatus* / Champ.”; “E. M. M. 1923. / Det. G. C. C.”; “LECTOTYPE / *Cacchothryptus* / *multiseriatus* / Champion / by DP Wooldridge”; “*Pseudothryptus* gen.n. / *multiseriatus* (Champ.) comb. n. / Hernando & Ribera des. 2002”. **Paralectotype** ♂ (NHM): “SYNTYPE”; “Bengal / E. Douars / H. Stevens”; “H. Stevens / Brit. Mus. / 1922-307.”; “*Cacchothryptus* / *multiseriatus* / Champ.”; “E. M. M. 1923. / Det. G. C. C.”; “*Cacchothryptus* /



Figs 1–3. 1) *Pseudothryptus multiseriatus*, head and pronotum, dorso-lateral view; 2) *Pseudothryptus multiseriatus*, male last abdominal sternite; 3) *Cacchothryptus compactus*, male last abdominal sternite. Scale bar: 0.5 mm.



Figs 4–7 *Caccothryptus compactus*. 4) aedeagus, lateral view; 5) apex of the aedeagus, ventral view; 6) male genital segment (9th sternite); 7) male 8th sternite. Scale bar: 0.1 mm.



Figs 8–11 *Pseudothryptus multiseriatus*. 8) aedeagus, lateral view; 9) aedeagus, ventral view; 10) male genital segment (9th sternite); 11) male 8th sternite. Scale bar: 0.1 mm.

multiseriatus / [hw]"; "Pseudothryptus gen. n. / multiseriatus (Champ.) comb. n. / Hernando & Ribera des. 2002".

Additional material examined. INDIA: 1 ♂ (NHM): "Sikkim: / Gopaldhara / Rungbong Vall. / H. Stevens"; "Cacothryptus / multiseriatus / Ch. [hw]"; "H. Stevens. / Brit. Mus. / 1922-307."; "E. M. M. 1923. / Det. G. C. C."; "Cacothryptus / multiseriatus / Champ."; "Pseudothryptus gen.n. / multiseriatus (Champ.) comb.n. / Hernando & Ribera des. 2002".

Description. Length 2.4–2.5 mm. Body oval, very convex, brown to dark brown. Body covered with a double pubescence; short decumbent setae (i.e. erect basally but strongly recurved at apex), within punctures of elytral series, not forming elytral design; long setae in interstriae, almost perpendicular to elytral surface, very long and thick.

Head partially inserted in pronotum, which is excavated for its reception. Surface with coarse and dense puncturation. With a deep supra-ocular sulcus reaching posteriad beyond the eyes; frons with two deep sulci starting from a deep fovea by insertion of antennae, converging posteriad (Fig. 1). Antennae long and slender, longer than posterior margin of pronotum, entirely pubescent; 11 segmented, 1st antennomere small and globular, 2nd to 10th elongated, apex slightly asymmetrical, 11th laterally truncated. Last segment of maxillary palpi truncated.

Pronotum transverse, narrow; posterior margin slightly sinuate, lateral and front margins strongly bordered; anterior border excavated for reception of antennae (Fig. 1). Surface densely and strongly punctured, surface among punctures smooth and shiny. Scutellum triangular, slightly curved laterally.

Elytra very convex, with a strong humeral callus; each elytron with 13 regular series of punctures; surface between punctures smooth and shiny, slightly convex; space between rows of punctures smaller than their diameter.

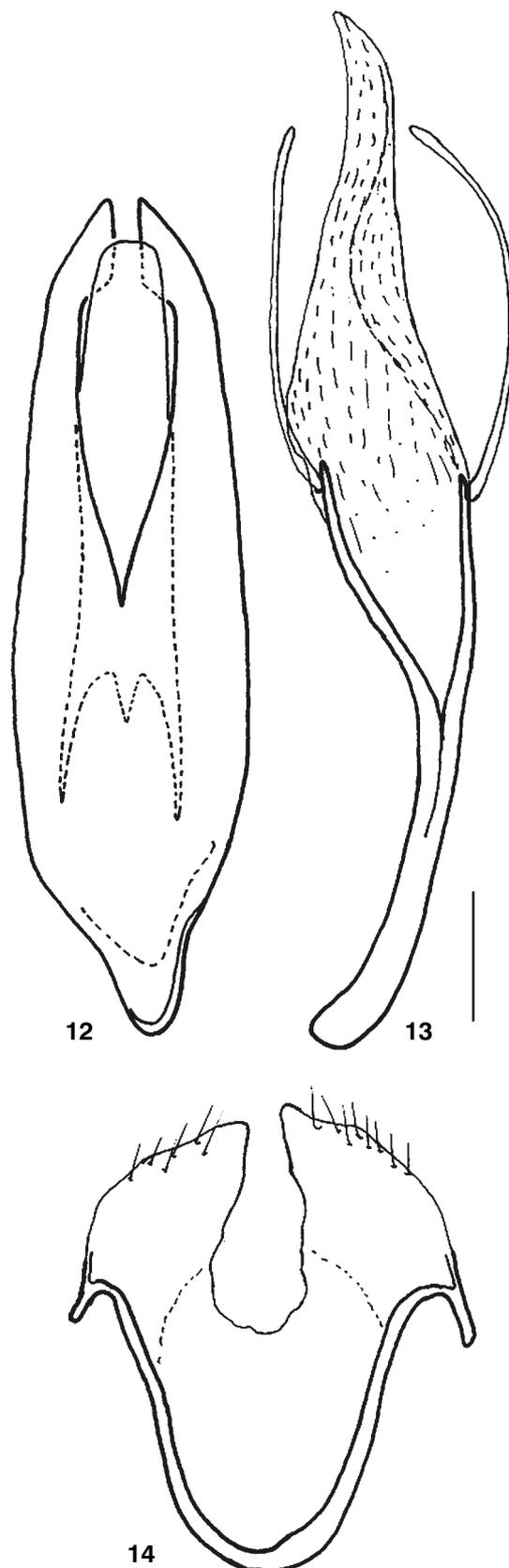
Ventral surface with deep excavations for reception of legs. Thoracic hypomera at a different level, separated by carinae. Apex of prosternal process blunt and strongly inserted in mesosternite. Base of eplipleura excavated for reception of mesofemora, narrowing from first abdominal segment to apex. Mesosternite flat and narrow, with a medial, weakly impressed longitudinal sulcus; surface covered by coarse, dense puncturation. First three abdominal sternites connate; with very dense puncturation in all surface. Apex of last sternite emarginated, with a small medial denticle (Fig. 2). Legs short and robust, femora excavated for reception of tibiae.

Sexual Dimorphism: Males with glandular pores covering all surface of 4th abdominal sternite and most of 5th (Fig. 2). Aedeagus not articulated, strongly sclerotised, elongated, dorsoventrally flattened, regularly curved (Figs 8–9). Parameres laterally fused. Median lobe as long as parameres, with a small longitudinal sulcus in apical region (Fig. 9); base of aedeagus symmetrical, ductus with a dorsal opening, with short strouts convergent basally (Fig. 9).

Genital segment (9th sternite) with base longer than parameres; lamina very membranous, with poorly defined edges (Fig. 10). 8th sternite V-shaped, forming an acute angle (Fig. 11).

Females unknown.

Distribution. NE India (Assam and Sikkim).



Figs 12–14 *Mandersia* sp. 12) aedeagus, ventral view; 13) male genital segment (9th sternite); 14) male 8th sternite. Scale bar: 0.5 mm.

Discussion

The genus has to be included in subfamily Limnichinae, as it has five-segmented tarsi and excavated ventral surface for the reception of the femora and tibiae (profemora on the hypomeron, mesofemora on the metasternite, metafemora on the first ventrite) (HINTON 1939; WOOLDRIDGE 1975).

At present there is no available formal phylogeny of Limnichidae, but, *Cacchothryptus* seems to be related to a group of genera formed by *Euthryptus* SHARP (Neotropical, 2 spp.), *Resachus* DELÈVE (Afrotropical, 2 spp.), *Simplocarina* PIC (Afrotropical, 1 sp.), and *Mandersia* SHARP (Oriental, 1 sp., although with several undescribed species), in what could be called the “*Mandersia* group of genera” (as this is the oldest genus name, SHARP 1902: 62). They share the following characters: a non-articulated aedeagus, with laterally or ventrally fused parameres; genital segment symmetrical; median lobe without “spiculum” (= articulated internal piece, present in *Byrrhinus*); base of pronotum never with a double sinuation; internal posterior margin of pronotum not crenulate; prothoracic hypomera at two levels, divided by a sulcus or a carina; last segment of the maxillary palpi with apex round or laterally truncated, never acuminate.

Key of the *Mandersia* group of genera

- 1 Parameres of the aedeagus ventrally fused, forming a lamina with an emargination in the apex (Figs 4–5) ... 2
- Parameres of the aedeagus laterally fused (Figs 8–9) ...
..... 4
- 2 Head without oblique frontal sulci 3
- Head with oblique frontal sulci of variable length, converging posteriad but not merging *Resachus*
- 3 Antennae short, not reaching posterior margin of pronotum; elytra with uniform punctation, without striae or series of coarser punctures; apical region of median lobe of aedeagus not longitudinally divided ...
..... *Simplocarina*
- Antennae longer than posterior margin of pronotum; punctation of elytra forming irregular striae, with punctures of different diameter; apical region of median lobe of aedeagus longitudinally divided, forming two well differentiated lobes (Fig. 9) *Cacchothryptus*
- 4 Median lobe of aedeagus without apical sulcus; phallobase asymmetrical, with an expansion forming a lamina 5
- Median lobe of aedeagus with a small apical sulcus (Fig. 9); phallobase symmetrical, without an expansion forming a lamina (Figs 8–9) *Pseudothryptus*
- 5 Aedeagus parallel-sided or regularly convergent to the apex, which is truncated or acuminate; parameres partially covering the median lobe (Fig. 12) *Mandersia*
- Aedeagus strongly narrowed in the medial part, apex lanceolated; parameres clearly separated from median lobe, not covering it *Euthryptus*

Other than the characters reflected in the key above, *Pseudothryptus* can be separated from *Mandersia* and *Euthryptus* (to which it has some superficial resemblance) by some additional characters: these two genera have a genital segment with very narrow basal part, approximately as long as parameres, which are partially fused, and a well defined lamina (Fig. 13); 8th sternite U-shaped, with very short arms (Fig. 14). Strouts of the median lobe short, ending well before the base (Fig. 12). Phallobase slightly asymmetrical, with latero-basal ductus (Fig. 12). Elytra without rows of punctures, or with only a few lateral series. Pubescence simple (not double), short.

Acknowledgements

We thank Manfred Jäch (Naturhistorisches Museum, Wien), Stuart Hyne and Max Barclay (Natural History Museum, London), Nicole Berti (Muséum National d'Histoire Naturelle, Paris), Bill Shephard (Essig Museum of Entomology, Berkeley) and Andreas Pütz (Eisenhüttenstadt, Germany) for the loan of material for study. We also thank M. Jäch for comments to the manuscript, and for sustained encouragement and support to our studies of Limnichidae. Financial support of the EU programme SYNTHESYS at Natural History Museum Vienna (project AT-TAF 217) is greatly acknowledged by I. Ribera.

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Manuscript received: 10. 11. 2005.