

A new species of the bee genus *Chiasmognathus* from southwestern Niger (Hymenoptera: Apidae)

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Abstract. A new species of the cleptoparasitic bee genus *Chiasmognathus* Engel, 2006 is described and figured from southwestern Niger. *Chiasmognathus sahelien-sis* sp. nov. (Ammobatini) is distinguished from its congeners by the combination of its coloration, integumental sculpturing (particularly that of the mesosoma), and genitalic structure. Species of the genus victimize nests of *Nomioides* Schenck, 1867 and perhaps *Ceylalicthus* Strand, 1913 (Halictidae: Halictinae: Nomioidini), both of which are known to occur in Niger.

Key words. Hymenoptera, Apoidea, Anthophila, Apidae, Nomadinae, Ammobatini, new species, Ethiopian Region, Niger

Introduction

The minute bees of the genus *Chiasmognathus* Engel, 2006 are distinctive members of the tribe Ammobatini who victimize nests of the equally diminutive species of the Nomioidini (Halictidae) (e.g., ENGEL 2006, 2007, 2009). Unfortunately, scant information is available regarding the biology of *Chiasmognathus* species. The known distributions and host records are summarized in Table 1, while ROZEN (2008) provided an account of the immature stages and mode of cleptoparasitism for *C. pashupati* Engel, 2007 in Pakistan. No further information is available regarding *Chiasmognathus* biology. Given the rarity with which specimens of *Chiasmognathus* have been collected and the broad distribution of the genus, it is likely that additional species will be discovered.

Chiasmognathus most readily can be recognized by its diminutive size (ca. 2–3.6 mm in total length); the enlarged pedicel which is basally closely adapted to the scape; the long axes of the closed mandibles crossing at a right-angle (similar to *Pseudodichroa* Bischoff, 1923) and recessed into the proboscival fossa, filling space between the labral margins and the adjacent anterior postgena; the pronotum in dorsal aspect concealed beneath the anterior margin of the mesoscutum; the forewing venation contracted basad, with the marginal cell

truncate and 1rs-m absent (i.e., two submarginal cells); the hind wing lacking a jugal lobe; the female with the sixth metasomal sternum bearing an elongate process that is deeply-bifurcate apically; the male eighth metasomal sternum with the spiculum greatly produced and apically dilated; the male with the gonobase greatly reduced and the gonocoxae fused dorsally for the greater part of their length; and the penis valves not fused with the aedeagus (ENGEL 2006). A more complete and detailed account of the generic morphology is provided by ENGEL (2006, 2009).

Herein is reported the first species of the genus from western Africa, based on a male collected in southwestern Niger. Multiple species of both *Nomioides* Schenck, 1867 and *Ceylaliectus* Strand, 1913 are recorded from Niger (PESENKO & PAULY 2005) and represent potential hosts for the species recorded herein. These minute bees are often overlooked and it is possible that the genus occurs broadly throughout Africa (and more widely in Asia) wherever Nomioidini are found. This species is described to bring it to the attention of melittologists in the hopes that more thorough collecting and investigation may be undertaken at nomioidine nesting sites.

Material and methods

Morphological terminology generally follows that of ENGEL (2001) and MICHENER (2007), while the format for the description follows that of ENGEL (2007, 2009). Measurements were made using an ocular micrometer on an Olympus SZX-12 stereomicroscope. Photomicrographs were prepared using an Infinity K-2 long-distance microscopic lens attached to a Nikon D1x digital camera.

Systematics

Genus *Chiasmognathus* Engel

Chiasmognathus sahelienis sp. nov.

(Figs. 1–5)

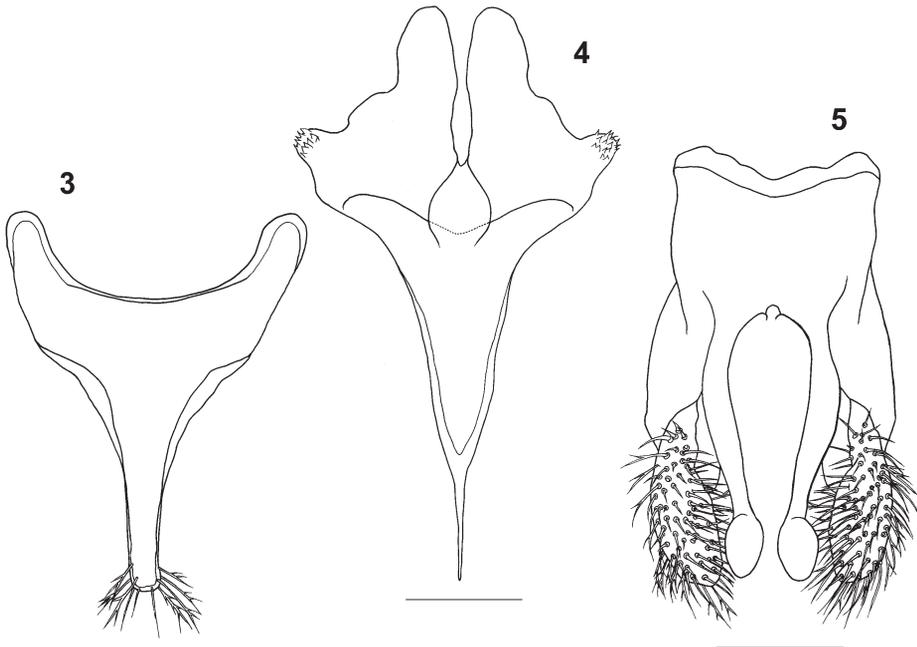
Type material. HOLOTYPE: ♂, NIGER [Republique du Niger], 20 km S. Tahoua [14°45'N 5°20'E], 13.8.1987 [13 August 1987], A. Pauly col.; specimen deposited in the Department of Entomology, Royal Belgian Institute of Natural Sciences, Brussels, Belgium (RBINS).

Diagnosis. The new species can be distinguished by the dark reddish brown integument of the head and mesosoma (Figs. 1–2); brown metasoma; sparsely punctured mesoscutum, with punctures gradually becoming more dense posteriorly; strongly punctured pleura, with punctures sparse around the episternal scrobe; and the structure of the terminalia (Figs. 3–5).

Description. Male. Total body length ca. 2.4 mm (estimated by combining lengths of head and mesosoma with that of preserved portions of metasoma which was partial, detached, and previously dissected); forewing length 1.8 mm. Head wider than long (width 0.77 mm, length 0.63 mm); inner margins of compound eyes straight, convergent below; apex of clypeus at lower tangent of compound eyes; ocelli well above upper tangent of compound eyes; clypeus



Figs. 1–2. Photomicrographs of holotype male of *Chiasmognathus sahelensis* sp. nov. from Niger: 1 – facial aspect; 2 – dorsal aspect.



Figs. 3–5. Male terminalia of *Chiasmognathus sahelensis* sp. nov. from Niger: 3 – sternum VII; 4 – sternum VIII; 5 – ventral aspect of genital capsule. Scale bars = 100 μ m.

nearly flat; malar space vestigial; mandibles simple, crossing in repose but not covering labrum. Intertegular distance (as measured from between inner margins of tegulae) 0.50 mm. Forewing marginal cell broadly truncate; both m-cu crossveins entering second submarginal cell; hind wing with five hamuli. Male terminalia depicted in figures 3–5.

Clypeus and supraclypeal area with small, shallow punctures separated by a puncture width; face with small, well-defined punctures separated by 1–2 times a puncture width, integument between punctures smooth; punctures becoming slightly more dense on vertex, separated by 0.5–1.5 times a puncture width, integument between punctures smooth; punctures on gena separated by 1–2 times a puncture width, integument between punctures smooth; frontal line carinate from lower tangent of toruli to about 0.75 times median ocellar diameter from median ocellus, becoming a strongly impressed line at that point; scape and pedicel faintly imbricate. Mesoscutum smooth with small, well-defined punctures separated by 3–6 times a puncture width over most of disc, punctures becoming slightly more dense posteriorly (Fig. 2), separated by 2–3 times a puncture width in posterior third and separated by 1–3 times a puncture width in posterolateral corners and along extreme posterior border; mesoscutellum smooth with punctures similar to those of mesoscutum except slightly more shallow and separated by 0.75–1.5 times a puncture width centrally and 1.0–1.75 times a puncture width along borders; tegula faintly imbricate; metanotum scarcely evidence, represented by a thin strip of integument between mesoscutellum and propodeum; pleura with strongly defined

Table 1. Diversity in the genus *Chiasmognathus* Engel, 2006 (Ammobatini).

<i>Chiasmognathus</i> species	Distribution	Host
<i>C. aegyptiacus</i> (Warncke, 1983)	northern Egypt, Israel	Unknown
<i>C. aurantiacus</i> Engel, 2009	UAE	Unknown
<i>C. gussakovskii</i> (Popov, 1951)	Tajikistan, Kyrgyzstan	Unknown
<i>C. himyarensis</i> Engel, 2009	western Yemen	Unknown
<i>C. nearchus</i> Engel, 2009	UAE, Oman	<i>N. rotundiceps</i> Handlirsch, 1888
<i>C. orientanus</i> (Warncke, 1983)	Bulgaria, Turkey, Cyprus, Crete, Israel	<i>N. minutissima</i> (Rossi, 1790)
<i>C. pashupati</i> Engel, 2007	southeastern Pakistan	<i>N. patruelis</i> Cockerell, 1919
<i>C. rhagae</i> Engel, 2008b	northern Iran	Unknown
<i>C. saheliensis</i> sp. nov.	southwestern Niger	Unknown
<i>C. taprobanicola</i> Engel, 2008a	Sri Lanka	<i>Ceylalicus</i> spp.?

punctures separated by 0.25–1.0 times a puncture width except punctures sparse around scrobe, integument between punctures smooth and shining; propodeum faintly imbricate, lateral surface with shallow, poorly-defined punctures separated by 0.5–1.0 times a puncture width, posterior surface impunctate. Metasomal terga and sterna faintly imbricate except first tergum smooth.

Integument of head and mesosoma dark reddish brown (Figs. 1–2) and shining except labrum, mandible, labiomaxillary complex, scape, and pedicel brown; antennal flagellum light brown; tegula translucent brown; wing veins brown, membrane hyaline; legs brown except tarsi light brown. Metasoma brown.

Pubescence silvery white. Head with scattered suberect to erect, fine, simple setae, intermingled with suberect, plumose setae just above and around antennal toruli and on face below tangent of antennal toruli, such setae not obscuring integument; gena with such plumose setae more numerous; apicolateral corners of clypeus with small patches of tightly packed, elongate, minutely-branched setae, such setae off-white. Mesosomal dorsum with sparse, short, simple setae, largely confined to lateral areas, with short, appressed, plumose setae on anterior-facing lip of mesoscutum, axillar surface, and upper portion of propodeum, both laterally and posteriorly; pleura with scattered suberect, branched setae, such setae not obscuring integument. Metasoma with widely scattered, suberect to erect, short, simple setae, terga apparently without fasciae.

Female. Unknown.

Etymology. The specific epithet refers to the Sahel (a.k.a., Sahel Belt), the semi-arid steppe and savanna bordering the Sahara to the North and the more arid Sudan savanna belt to the South.

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