


## Studies on Crambidae V: *Chalcibotys*, a new genus of Spilomelinae from Africa (Lepidoptera: Pyraloidea: Crambidae: Spilomelinae)

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**Abstract:** A new genus *Chalcibotys* is erected in the Spilomelinae to group two new species who have external resemblances to *Chalcidoptera appensalis* var. *aethiops* Gaede, 1917.

**Key words:** Africa, *Chalcibotys*, Crambidae, **gen. nov.**, **sp. nov.**, Spilomelinae

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### INTRODUCTION

The Spilomelinae is the largest subfamily within the Crambidae. It is very diverse in external habitus: different colours, different sizes in wingspan, differences in genitalia. The tympanal organs are quite similar (broad fornix tympani, zona glabra tympani small or even absent, saccus tympani usually absent). The labial palps are usually upturned and rather short. The classification of the Spilomelinae is still problematic although progress has been made when some molecular studies have been done (Mally *et al.*, 2019). One of the main problems remains the large number of undescribed species and taxa Munroe (1972) estimated about 50% of the global fauna to be undescribed, Sutton *et al.* (2015) estimate about 60% of the Southeast Asian fauna to be undescribed.

Personally, I have been working now for 30+ years mostly on the African fauna, first compiling a checklist later extending this to an illustrated world database, and in a later stage studying the types of the described species to establish the correct identity of the species mentioned over the years. This was additionally complicated because the African fauna was historically studied the latest of all continents, and at that time of description most species were placed in known genera with type species originally from other continents. There is certainly a number of genera with an “Old World” distribution and even some from the “New World” but a vast number of known and new species must be classified in new genera which will be endemic for the African continent. A number of species and genera are easy to recognize but the majority of species belong to the “LBJ’s” or ‘little brown jobs’ which, externally, can be very similar and difficult to distinguish one from another. About 1550 species of Crambidae (various subfamilies) are described from Africa. From my experience at least 500+ taxa remain to be described, and

the percentage of undescribed taxa (30%) is probably under-estimated.

The species described here are inconspicuous, small and brown. Externally they could be placed near *Chalcidoptera appensalis* var. *aethiops* Gaede, 1917. The identity of *aethiops* was studied earlier (Maes, 1996) and its current placement will be discussed in another paper. The species included here are not related at all to *appensalis* or *aethiops*, the genitalia are completely different.

### METHODS AND MATERIALS

ABSRC: AgroBioSys Intl. Reference Collection, Wetteren, Belgium

NHMW: Naturhistorisches Museum Wien, Austria.

#### Genitalia dissection:

Genitalia were dissected following Maes (1985) (a modification and extension of Robinson [1976] specific to the Pyraloidea) except that now the abdomen is opened laterally to show better the characters on sternites and tergites.

#### Wing venation:

The wings were cleared and stained following a method described by Zimmerman (1978).

#### Digital processing of images:

Images of the adults were taken with a Canon Eos 5D Mark IV with a Macro lens EF 100mm 1:2.8 using a Helicon remote (ver. 3.9.12M) and the stacking of images with Helicon focus (ver.8.2.7). The genitalia were photographed with a Canon Eos 5D Mark IV on a Leitz Laborlux S.

### RESULTS

**Crambidae** Latreille, 1810

**Spilomelinae** Guenée, 1854

#### Descriptions:

*Chalcibotys* **gen.nov.**

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gender: male

type species: *Chalcibotys alboreniiformis* sp.nov.

**Diagnosis:** male genitalia with a simple very short, broad-based uncus on a short triangular tegumen. Valva simple, elongated triangular without any extensions (sella, editum, fibula.). Aedeagus tubular with spine shaped cornutus. Female genitalia with a bulbous structure on the ductus bursae shortly beneath the antrum; ductus bursae and corpus bursae very long.

**Description:**

**Head:** frons rounded; antennae filiform; labial palps slender, upturned with a clear small, third segment; maxillary palps at base of scaled proboscis, small.

**Wings:** forewings triangular; R1 and R2 originating before the upper angle of the cell; R3+4 originating from the upper angle of the cell; R2 parallel with base of R3+4, curbing away at about one third of the length of R3+4 from the base of the upper cell; R3 and R4 bifurcating at about two thirds of the length of R4; R3 ending in termen, R4 just beneath; R5 and M1 parallel over their whole length; M2 near base from M3 but clearly separated, M3 from lower angle of the cell: Cu1 near M3 but separated. CuA1 and CuA2 parallel over their whole length. A vein well developed. Hindwings with CuA1, M2 and M3 originating from the lower angle of the cell; CuA2 parallel with CuA1 over its whole length; three anal veins present.

**Tympanal organs:** praecinctorium terminally enlarged, bilobed; fornix tympani large, above the venula secunda; bulla tympani bean-shaped; pons tympani broad; zona glabra tympani without venulae secundae; sternite II with two pointed extensions towards the bulla tympani.

**Male genitalia:** uncus short and wide, broadly attached to the tegumen; the latter wide; vinculum V-shaped, saccus small; valva long and slender, terminally pointed with some elongated setae in the middle part of the valva; sella, editum or fibula lacking; aedeagus tubular with spine-shaped cornuti, number and form of specific value.

**Female genitalia:** papillae anales membranous with long and short setae; sinus vaginalis membranous continuing in a tubular ostium and terminating in a sclerotized base; first part of ductus bursae tubular, membranous then forming an enlarged pouch then continuing in a tubular ductus bursae, which has the first part with some minute sclerotizations and forming an enlarged area at one side then tubular and continuing in an oval or round corpus bursae, signum or appendix bursae lacking.

**Foodplant:** unknown.

**Distribution:** Cameroon, Kenya, Tanzania, Mozambique.

**Etymology:** the name refers to the external resemblance with *Chalcidoptera appensalis* var. *aethiops* and *Botys*, a name used by the older authors (Walker, Fabricius) for Pyraloidea.

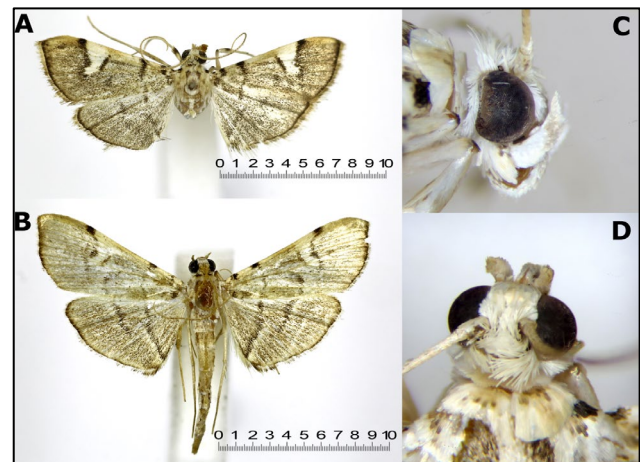
**Systematic placement:** The genus is placed in the Crambidae, Spilomelinae on account of the basic structure of the male and female genitalia. The tribe is not determined at this point.

*Chalcibotys alboreniiformis* sp. nov.

**Type material:** Holotype ♂: CAMEROON, North Prov., Hippo Camp, near Faro N.P. 8°23'36.4"N, 12°49'26.03"E, 297 m. Black/MV lights. 23 to 26-XI-2003. K.Maes/K.Maes Gen.Prep.nr.♂1141/ ABSRC1001588; Paratypes:

1 ♂: CAMEROON, North Prov, Hippo Camp, near Faro River and 17km from Voko. 8°26'44.78"N, 12°47'06.04"E, 300 m. F-15TB/BL in fluorescent and 250W MML lights. 10 to 15-X-2023. K.Maes/ ABSRC1003520; 1 ♀: CAMEROON, North Prov., Hippo Camp, near Faro N.P. 8°23'36.4"N, 12°49'26.03"E, 297 m. Black/MV lights. 23 to 26-XI-2003. K.Maes/ K.Maes Gen.Prep.nr.♀1142/ ABSRC1003761; 1 ♂: CAMEROON, North Prov., Hippo Camp, near Faro N.P. 8°23'36.4"N, 12°49'26.03"E, 297 m. Black/MV lights. 23 to 26-XI-2003. K.Maes/ ABSRC1003762; 1 ♀: CAMEROON, North Prov., near Hippo camp, Mayo Konoué 08°22'29.0"N, 12°51'16.0"E, 295 m. Black/MV lights 27 to 30-XI-2003. K.Maes/ K.Maes Gen.Prep.nr.♀2389 Wings/ ABSRC1003763; 1 ♂: CAMEROON, North Prov., Hippo Camp, near Faro N.P. 8°23'36.4"N, 12°49'26.03"E, 297 m. Black/MV lights. 23 to 26-XI-2003. K.Maes/ ABSRC1003764

**Diagnosis:** a large, rather broad, white reniform spot starting from the costa inwards just beyond the transversal vein of the forewing. Male genitalia with a curved costa and only one bunch of spine-shaped cornuti in the vesica; female genitalia with a rounded enlarged pouch, with longitudinal folds and some sclerotizations; corpus bursae oval.



**Figure 1** – A: *Chalcibotys alboreniiformis* spec. nov. Holotype; C,D: lateral and dorsal view head; B: *Chalcibotys massasiensis* spec. nov. Paratype ABSRC1003759.

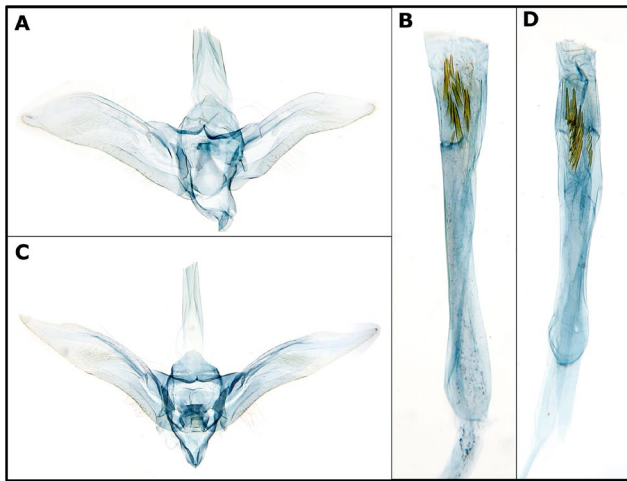
**Description:**

**Head:** (Fig. 1: C, D.) frons flat; maxillary palps near base of scaled proboscis; labial palps slender, upturned, all three segments clearly distinguishable; antennae filiform in males and females.

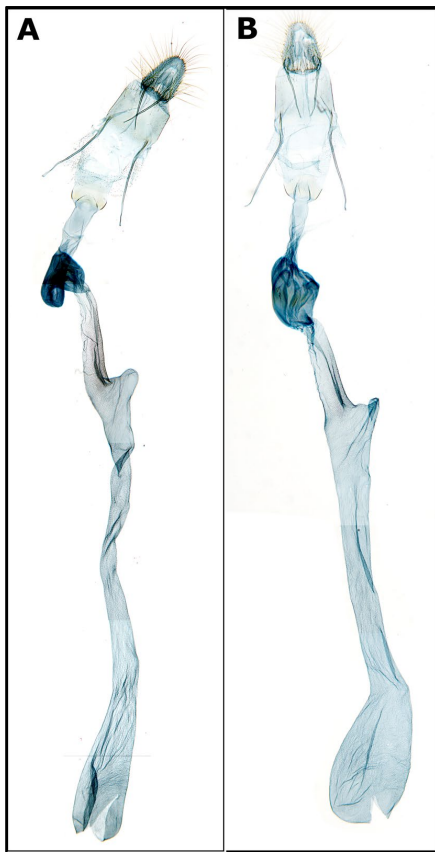
**Thorax:** forewings triangular with a clear kidney-shaped dot just beyond the transversal vein of the cell; costa with a clear antemedian line near the first fifth of the costa, black near the costa, more diffused near the inner margin of the forewing ground colour wings grey; forewing triangular, costa light yellow with clear black markings, one near the base of the wing near the tegula, one before the base of the antemedian line, one at the base of the antemedian line, one at the base of the postmedian line and one on the outer margin of the reniform whitish spot; antemedian lines lightly curved, postmedian line S-shaped with whitish reniform spot on its outer margin broad near the costa, terminating near the basal angle of the cell. Hind wings same colour as the fore wings, grey with a black almost

straight antemedial line and a short almost straight postmedian line starting at the costa and ending near the first cubital vein.

**Wingspan:** 14-17mm.



**Figure 2** – A: *Chalciobotys alboreniiformis* spec. nov. Holotype, K.Maes Gen.prep.nr.♂1141; B: aedeagus; C: *Chalciobotys massasiensis* spec. nov. Paratype, K.Maes Gen.prep.nr.♂1144, D: aedeagus.



**Figure 3** – A: *Chalciobotys massasiensis* spec. nov. Paratype: K.Maes Gen.Prep.nr.♀1444; B: *Chalciobotys alboreniiformis* spec. nov. Paratype: K.Maes Gen.Prep.nr.♀1142.

**Male genitalia:** (Fig. 2: A, B.) Uncus short and broadly attached to the broad tegumen; vinculum with two long V-shaped arms, saccus small; juxta as a pear-shaped plate; valva simple: costa first straight, apically curved towards a simple point; sacculus straight towards that point; valva with some elongated setae in the middle and near the last third of the valva; aedeagus tubular, apically slightly

widened and containing 12 to 13 simple, well sclerotized spines.

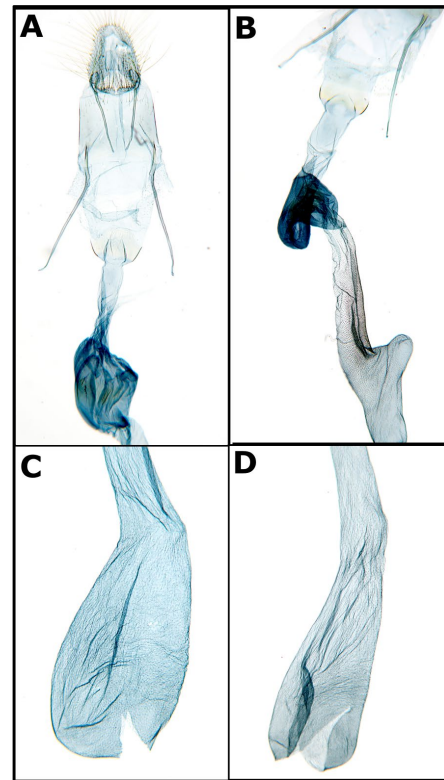
**Female genitalia:** (Fig. 3: B; Fig. 4: A,C.) papillae anales membranous with some short and long setae; apophyses posteriores about 2/3 of the length of the apophyses anteriores; sinus vaginalis membranous, widened and forming a small cup before continuing in a tubular part towards a widened, slightly sclerotized bulbous structure (Fig. 4: A); ductus bursae tubular, covered with minute sclerotizations and forming an extension near one fourth of the length of the ductus bursae, this part is also covered with much less sclerotizations; corpus bursae, oval, bulbous without any signum nor appendix bursae (Fig.4: C.).

**Tympanal organs:** as for the genus (Fig. 5: A)

**Etymology:** The name refers to the white (latin: albo-) kidney (latin: ren) shaped (latin: formis) spot near the costa and at the antemedial line of the fore wing.

**Foodplant:** unknown.

**Distribution:** Cameroon, Northern region.



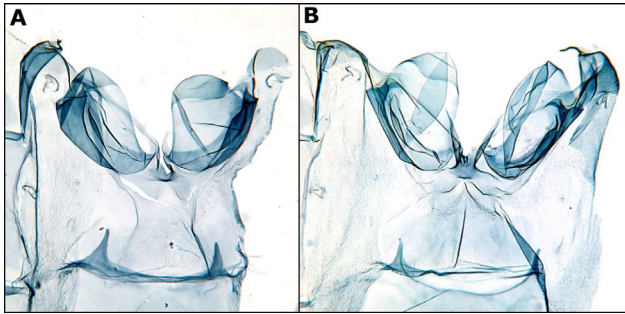
**Figure 4** – Details female genitalia: A, C: *Chalciobotys alboreniiformis* spec. nov. Paratype: K.Maes Gen.Prep.nr.♀1142; B, D: *Chalciobotys massasiensis* spec. nov. Paratype: K.Maes Gen.Prep.nr.♀1444.

*Chalciobotys massasiensis* sp.nov.

**Type Material:** Holotype ♂: Tanganyika Terr. Massassi [Masasi], 460 m, 15 to 23-VI-1936 Zerny/ K.Maes Gen.Prep.nr.♂1443/ ABSRC1003757; Paratypes: 1♀: Tanganyika Terr., Massassi [Masasi], 460 m, 15 to 23-VI-1936 Zerny/ K.Maes Gen.Prep.nr.♀1444/ ABSRC1003758; 1♂: Maronga Forest, Moz[ambique]. 20°03'S, 33°09'E, 6 to 11-IX-1972 R.H.Jones/ K.Maes Gen.Prep.nr.♂1144/ ABSRC1003756; 1♀: Tanzania, Morogoro, 8.7 km S. of Mikumi, 7°27'54.1"S, 37°00'53.5"E, 430 m, Black/MV lights. 6-VI-2001. K.Maes/ K.Maes Gen.Prep.nr.♀1143/ ABSRC1003760;

1♂: Tanzania, Morogoro, 7.1 km S. of Mikumi, 7°27'22.8"S, 37°00'25.6"E, 500 m, Black/MV lights, 10-VI-2001. K.Maes/ ABSRC1003759; 1♂: Tanganyika Terr. Massassi [Masasi], 460 m, 15 to 23-VI-1936 Zerny/K.Maes Gen.Prep.nr.♂2963 (Wien); 4♂: Tanganyika Terr., Massassi [Masasi], 460 m, 15 to 23-VI-1936 Zerny (Wien).

**Diagnosis:** uncus short and very broad; valva long and slender, pointed; aedeagus with a series of spines: a larger patch with a smaller patch on the side. Female genitalia with a curled, enlarged pouch beyond the antrum; corpus bursae small.



**Figure 5** – Tympanal organs: A: *Chalcibotys alboreniformis* spec. nov. Holotype; B: *Chalcibotys massasiensis* spec. nov. Paratype: K.Maes Gen.Prep.nr.♀1143.

#### Description:

**Head:** frons flat; maxillary palps near base of scaled proboscis; labial palps slender, upturned, all three segments clearly distinguishable; antennae filiform in males and females.

**Thorax:** ground colour wings grey; fore wing triangular, costa light yellow with clear black markings, one near the base of the wing near the tegula, one at the base of the antemedial line, one at the base of the postmedian line and one on the outer margin of the reniform whitish spot; antemedial line slightly curved, postmedian line S-shaped with whitish reniform spot on its outer margin, broad near the costa, terminating narrower near the basal angle of the cell. Hind wings same colour as the fore wings, grey with a black almost straight antemedial line and a short almost straight postmedian line starting at the costa and ending near the first cubital vein. Outer margin of fore and hind wings with fine black scaling, fringe grey as ground colour.

**Wingspan:** 16-17mm.

**Abdomen:** dorsal and ventral side with the same colour, as ground colour of wings.

**Male genitalia:** (Fig. 2: C, D) uncus broadly triangular and fused with the large tegumen; vinculum arms long with a simple saccus; valva as previous species but longer and with the costa more straight and ending in a point; sacculus slightly curved and ending in an apical point; similar area with elongated setae near the middle at the last third part of the valva; juxta as a plate. Aedeagus tubular, slightly narrowed near the first third, carrying two bunched of strongly sclerotized spines: the largest one with about 13 spines, a second bunch of aligned spines, smaller and less numerous (7).

**Female genitalia:** (Fig. 3: A; Fig. 4: B,D.) papillae anales membranous with some short and long setae; apophyses posteriores about half of the length of the apophyses anteriores; sinus vaginalis membranous, widened but less as in the previous species, and forming a small cup before continuing in a tubular part towards a widened, curled and slightly sclerotized bulbous structure (Fig. 4: B); ductus bursae tubular, covered with minute sclerotizations and forming an extension near one fourth of the length of the ductus bursae, this part is also covered with much less sclerotizations; corpus bursae, long oval and less bulbous as in the previous species (Fig. 4: D). Signum, appendix bursae lacking.

**Tympanal organs:** (Fig. 5: B) as for the genus.

**Etymology:** The name refers to the type locality: Massassi in Tanzania.

**Foodplant:** unknown.

**Distribution:** Mozambique, Tanzania

#### ACKNOWLEDGEMENTS

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