

## Leiodinae (Coleoptera: Leiodidae) of the sub-Saharan continental Africa

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**Abstract.** *Colenisia blattoides* sp. nov. from Tanzania and *Afroagathidium parvulum* sp. nov. from Malawi are described and compared to similar species. *Pseudoagathidium ivani* Angelini, 1996 and *Pseudoagathidium rhodesianum leleupi* Angelini & De Marzo, 1987 are recorded for the first time from Malawi. *Colenisia tanzaniae* Švec, 1998 was found in Tanzania for the first time since the date of the original description and the species is also recorded as new to Malawi. The spermatheca of *C. tanzaniae* is figured for the first time. The keys to the determination of the continental African sub-Saharan Leiodinae tribes and genera and also the keys to *Colenisia* Fauvel, 1903 and *Afroagathidium* Angelini & Peck, 1984 species are provided.

### INTRODUCTION

The aim of the present paper is to provide a synopsis of the sub-Saharan continental African Leiodinae including descriptions of two new species and to present some new faunistic records.

The subfamily Leiodinae comprises altogether six tribes worldwide. The representatives of all of them were also recorded from the sub-Saharan continental Africa. Fifteen genera comprising 69 species of Leiodinae have been recorded from the sub-Saharan continental Africa up to now. They are *Dietta* Sharp, 1876 (9 species in the sub-Saharan continental Africa), *Euliodes* Portevin, 1937 (2 spp.), *Afrocyrtusa* Daffner, 1990 (1 sp.), *Afroleiodes* Peck, 2003 (2 spp.), *Anogdus* Le Conte, 1866 (1 species), *Hypoliodes* Portevin, 1908 (8 spp.), *Leiodes* Latreille, 1798 (1 sp.), *Zeadolopus* Broun, 1903 (19 spp.), *Colenisia* Fauvel, 1903bb(6 spp.); *Dermatohomoeus* Hlisenikovský, 1963 (1 sp.), *Afroagathidium* Angelini & Peck, 1984bb (3 spp.), *Pseudoagathidium* Angelini, 1993 (8 spp., 1 ssp.), *Cyrtusiola* Hlisenikovský, 1974 (2 spp.), *Popeus* Hlisenikovský, 1974 (4 spp.) and *Termitoglobus* Reichensperger, 1915 (2 spp.). The reliability of the occurrence of *Anogdus* in Africa is doubtful and it is discussed below in the paragraph “Discussion” together with the relationship of *Afroleiodes* and *Leiodes* in sub-Saharan Africa.

This paper brings descriptions of two sub-Saharan Leiodinae species new to science belonging to the genera *Afroagathidium* and *Colenisia*. Therefore, the fauna of the region comprises 71 Leiodinae species known at present, among them the 70 reliably confirmed (see Discussion).

No Leiodinae have been recorded from Malawi previously. In addition to describing a new *Afroagathidium* species, the present paper also records two *Pseudoagathidium* species new to Malawi.

*Afroagathidium* comprises seven species altogether, including the species new to science described here. Four of them occur in Africa, one species in the Eastern Palaearctic and two species in South-East Asia.

The genus *Pseudoagathidium* comprises 10 species - eight of them occur in Africa, one in the Oriental Region and one in the Nearctic Region.

The Leiodinae fauna of Tanzania comprises three species known until now, falling in the genera *Hypoloides*, *Zeadolopus* and *Colenisia*. One *Colenisia* species new to science and one more species of *Pseudoagathidium* new to Tanzania are recorded below.

The genus *Colenisia* is relatively rich in species. These are 66 species including the new one described below. They occur predominantly in the Eastern Palaearctic and the Oriental Regions - 45 species. Altogether 14 species are known from the Australian Region and 7 species from Africa including the species new to science described in the present paper.

The occurrence of *Pseudocyrtusiola* Švec, 2004 can be possibly expected in the continental Africa as the genus is known from Madagascar. That is why the genus is included in the key to the identification presented below.

## MATERIAL AND METHODS

This paper is based on the material collected in Tanzania by Vasily Grebennikov (Ottawa, Canada) and in Malawi by Petr Baňář (Brno, Czech Republic) and Peter Hlaváč (Praha, Czech Republic). All the specimens mentioned in the present paper were captured by sifting the forest litter.

The photographs of the type locality of *Afroagathidium parvulum* sp. nov. are in the Fig. 1 - the forest of the mount Zomba and the Fig. 2 - the site of the sift 13 containing the new species.

Abbreviation of the deposition sites of the type and other material examined.

MMBC Moravian Museum, Brno, collection, Czech Republic;

ZSPC Zdeněk Švec, Praha, private collection, Czech Republic.

Collecting data cited in quotation marks are taken from the locality labels accompanying the examined examples. The individual lines from the original locality labels are separated by a slash followed by a gap before next word; the individual labels are separated by double slash in this work. Each holotype or paratype is indicated by a red label bearing the status of the specimen (holotypus or paratypus, respectively) name of the species, the name of the author, year of the designation of the types (2020). The red label is attached to the same pin as the relevant specimen. The holotype labels are initialled by the author.

The specimens were preserved in 40 % ethyl alcohol. The selected specimens were dissected in a drop of water. Both the male and female genitalia were mounted in polyvinylpyrrolidone (Lompe 1986) on a transparent plate or on the same card as the relevant specimen; added to the same pin as the dissected specimen or directly on the card near the relevant specimen.





Figs. 1-2. Malawi, Mount Zomba, the type locality of *Afroagathidium parvulum* sp. nov.: 1- forest; 2- site of the sift 13. (photo by Petr Baňář).

The descriptions are based on the holotypes. The variability is mentioned in the paragraph “Variability” if necessary and includes features exhibited by the paratypes. Important characters of the sexual dimorphism are also included in the mentioned paragraph. Those characters that seem to be usual in the relevant genus, e.g. presence of short recumbent setae in dorsal punctures, micro-sculpture of venter, setosity on antennae, legs and venter, shape of the vertical mesoventral carina in *Colenisia* etc. are not mentioned in the descriptions.

The measurements of the total body length were taken from all specimens examined. Specific measurements of the individual body parts were taken from the holotypes only with excepting data concerning the spermatheca. The measurements of morphologic body parts were presented to the first decimal place of millimetre, the measurements of the genitalia were presented to the second decimal place of millimetre.

The material examined was determined by the author. The types have been deposited in MMBC and ZSPC.

Abbreviations of body parts and measurements:

AII-AXI	Antennomeres II-XI.
TI-TV	Tarsomeres I-V.
L	Length.
W	Width.
L/W or W/L	Ratio between measurements.
RSA	Republic of South Africa.

Remark: the geographic names of the African states are simplified for the usually used trivial names: e.g. The Democratic Republic Congo is simplified for Congo etc.

Terminology:

abdominal lines	line resembling very open letter V with tip oriented cranially located centrally on anterior margin of first visible abdominal ventrite with branches running latero-anteriorly;
coxal lines	line resembling very open letter V with tip located centrally on metaventrite just above its posterior margin with branches running latero-anteriorly;
endophallus	a sclerite or sclerites or other structures inside tegmen detectable in transmitted light;
lateral angle	an angle detectable at elytral margin in lateral view (Švec 2014);
mesoventral carina	longitudinal carina located in the middle of mesoventrite;
parallelogram	micro-sculpture represented by cells with predominantly parallel long strigosities connecting each other by short conjunctions;
procoxal rest	transverse anterior risen part of mesoventrite;
punctured stria	longitudinal row of punctures on elytra (this term is alternatively used for the expression: punctured stria in the present paper because both terms - stria and row of punctures - mean the same structures; various authors use the mentioned expressions for deepened or not deepened elytral stria equipped by punctures and

supraocular carina	also for longitudinally seriate rows of punctures. In case of the deepened striae, this fact is mentioned in the text; antero-lateral raised marginal bead of head, i.e. low carina at antero-lateral margin of head running from clypeus just along eyes caudally;
tarsal formula	number of tarsomeres in anterior- mid- and posterior tarsi;
tegmen or median lobe	median lobe of aedeagus.

## RESULTS

### Key to the identification of the Leiodinae tribes and genera from the sub-Saharan continental Africa

1	First visible abdominal ventrite with abdominal lines. (Scotocryptini). .....	2
-	Abdominal lines missing on first visible abdominal ventrite. ....	5
2(1)	Antennal club distinctly widened, stout; at least antennomeres AVII-AX broader than wide. ....	3
-	Antennal club very slim, elongate; all antennomeres longer than wide. Body very broadly oval, elytra with deepened striae. Distribution: Africa (Ghana, Zimbabwe, Rwanda, Nigeria). ..... <i>Popeus</i> Hlisenkovský, 1974	
3(2)	At least mid-femora very widened. ....	4
-	All femora of usual sub-parallel shape. Tibiae slender. Antennal club large, strikingly widened. Last antennomere more than 1.5 times as wide as long. Mesoventral longitudinal carina very low, unobtrusive. Distribution: Madagascar. (Occurrence of the genus in continental Africa presumable). .... ..... <i>Pseudocyrtusiola</i> Švec, 2004	
4(3)	Tibiae slender, subparallel. Distribution: Africa (Ivory Coast, RSA). .... ..... <i>Termitoglobus</i> Reichensperger, 1915	
-	At least mid-tibiae strongly widened. Distribution: Africa (Rwanda, Zimbabwe, RSA), Madagascar. .... ..... <i>Cyrtusiola</i> Hlisenkovský, 1974	
5(1)	Tibiae without any parallel longitudinal keels or edges, with thorns or spines of various length laterally and apically; tibia oval or flattened oval-shaped in cross section. ....	6
-	Tibiae with usually two longitudinal parallel edges equipped by very short fine bristles; tibia angled in cross section. (Agathidiini). ....	13
6(5)	Base of pronotum distinctly margined. Tarsal formula 5-5-5 in both sexes. ....	7
-	Base of pronotum not margined. Posterior tarsi with 4 or 3 tarsomeres. ....	8
7(6)	First tarsomere of posterior tarsi as long as or longer than TII. Mid-coxae approached. (Sogdini). Oblong oval, antenna with 5-segmented interrupted club, elytra with distinctly punctured striae, mesoventrite not carinate. Distribution: Africa (Lesotho, RSA). .... <i>Euliodes</i> Portevin, 1937	
-	TI of posterior tarsi much shorter than TII. Mid-coxae separated by at least coxal diameter. (Estadiini). Antennal club very stout. Antennomeres VII, IX, X bowl-shaped with lightly coloured distal almost flat surface. Mandibles strikingly prominent. Shape of body resembles small silphid <i>Nicrophorus</i> Fabricius, 1775. Distribution: Africa (RSA, Kenya, Namibia, Mozambique, Congo), Madagascar, Australian, Nearctic, Neotropical Regions. .... <i>Dieta</i> Sharp, 1876	



- 8(6) Labrum deeply excavate, therefore bilobed. At least anterior tibiae with strong numerous thorns laterally and apically. All tibiae usually distinctly thorned, frequently distinctly widened. (Leiodini). ..... 9  
 - Labrum not excavate. Tibiae slim, narrow at most with sporadic long thorn-like bristles (Pseudoliadini). .. 14
- 9(8) Mesoenventrite steeply falling. Clypeal line missing. *Cyrtusa* generic group. .... 10  
 - Mesoenventrite obliquely falling, frequently bearing longitudinal carina. Clypeal line developed. *Leiodes* generic group. .... 11
- 10(9) Antennal club distinctly 5-segmented (AVIII small but distinct). All tibiae slim, hind tarsi flattened laterally. Distribution: Africa (Rwanda, Burundi, Congo). ..... *Afrocyrtusa* Daffner, 1990  
 - Antennal club seemingly four-segmented, AVIII hidden between AVII and AIX. Tibiae, especially mid- and hind-tibiae strongly widened, shovel-like; outer margin of hind-tibia strongly spinning; left mandible with large tooth at basal third, right mandible edentate. Distribution: Africa (Angola, Botswana, Ghana, Ivory Coast, Namibia, Nigeria, RSA, Zambia, Zimbabwe), Zanzibar, Palaearctic, Oriental, Australian, Nearctic, Neotropical Regions. .... *Zeadolopus* Broun, 1903
- 11(9) Antennal club 5-segmented. .... 12  
 - Antennal club 3-segmented. Mesoenventrite with low longitudinal carina. Tibiae strongly widened. Elytra transversally strigose. Distribution: Africa (Tanzania, Congo, Ethiopia, Zimbabwe, Rwanda, Kenya). ..... *Hypoliodes* Portevin, 1908
- 12(11) Pronotum and elytra heavily punctured, head rugose punctured, elytral striae 2-5 sinuous near base, femora broad, meta-tibia exceptionally short, greatly expanded to apex. Distribution: Africa (RSA). ..... *Afroleiodes* Peck, 2003  
 - Dorsum normally finely punctured, legs of usual width not greatly expanded. Some of elytral striae occasionally sinuate. Distribution: Africa (North of Africa, RSA), Palaearctic, Nearctic, Neotropical, Oriental Regions. .... *Leiodes* Latreille,
- 13(5) Antennal club 3-segmented. Tegmen with one top apically. Distribution: Africa (Ethiopia, Zaire, RSA, Uganda, Rwanda, Zimbabwe), Oriental, Neotropical regions. .... *Pseudoagathidium* Angelini 1993  
 - Antennal club 4-segmented. Tegmen bifurcate apically. Distribution: Africa (RSA, Ghana, Malawi), Palaearctic, Oriental Regions. .... *Afroagathidium* Angelini & Peck, 1984
- 14(8) Mesoenventral longitudinal carina connecting anterior part of mesoenventrite (procoxal rest). Distribution: Africa (Rwanda, Zaire, Tanzania, Malawi), Palaearctic, Oriental, Australian Regions. .... *Colenisia* Fauvel, 1903  
 - Mesoenventrite with distinctly developed excavation between longitudinal carina and procoxal rest (best detectable in lateral view) - therefore longitudinal carina separated from procoxal rest anteriorly. Distribution: Africa (Burundi), Madagascar, Palaearctic, Oriental, Australian Regions. .... *Dermatohomoeus* Hlisnikovský, 1963

### ***Afroagathidium* Angelini & Peck, 1984**

#### Key to the identification of African species.

- 1 Antenna bicoloured. AI-AVI yellow-red, antennal club brown-dark. Dorsum finely, sparsely but distinctly punctured. .... 2  
 - Antenna unicolorous, testaceous. Puncturation of dorsum almost absent; only head and pronotum with some very small punctures. Lateral outline of tegmen concave in basal half dorsally seen. Length 1.5 mm. Ghana. .... *A. kaszabi* Angelini & De Marzo, 1984

- 2(1) AIII shorter than AII. Body larger, 1.8-2.1 mm. Head with one dimple on each side of clypeus. ....3  
 - AIII as long as AII. Body smaller, 1.2-1.4 mm. Head with very shallow depression on each side of clypeus. Lateral outline of tegmen concave in basal half dorsally seen; with transverse depression dorsally, distinct in lateral view (Fig. 5). AX almost symmetrical. Malawi. .... *A. parvulum* sp. nov.
- 3(2) Head finely and sparsely punctured; punctures separated by 3-6 times their own diameter. Lateral outline of tegmen straight in basal half of its length dorsally seen. Length 1.8-2.1 mm. RSA. ....  
 ..... *A. capense* Angelini & Peck, 1984  
 - Head finely but densely punctured; punctures separated by about 0.5-3 times their own diameter. Lateral outline of tegmen deeply concave in basal half dorsally seen. Length 1.8-2.0 mm. Congo. ....  
 ..... *A. zairensis* Angelini & De Marzo, 1985

***Afroagathidium parvulum* sp. nov.**

(Figs. 3-6)

**Type material.** Holotype (♂): “MLW/sift 13 S MALAWI 2018/Mt. Zomba, S15°20'37.2"/ E35°16'40.2" sifting forest litter/ Winkler app. extraction 27.11./ 1846m, P. Baňar & P. Hlaváč lgt.”, (MMBC). Paratypes: (2 ♂♂): the same data; (1 ♀): “MLW/sift 08 S MALAWI 2018/ Mulanje Mts., Chambe plateau/ S15°54'18.7" E35°32'50.4" sifting/ litter, Winkler app. extraction, 1953m/ 21.11. P. Baňar & P. Hlaváč lgt.”, (ZSPC, MMBC).

**Description.** Length 1.2-1.4 mm, 1.2 mm in holotype. Length of body parts in holotype: head 0.3 mm, pronotum 0.4 mm, elytra 0.5 mm, antenna 0.4 mm, aedeagus 0.51 mm. Spermatheca 0.11 mm. Maximum width of body parts in holotype: head 0.4 mm, pronotum 0.7 mm at base, elytra 0.8 mm at basal third. Dorsum without transverse strigosity or other micro-sculpture except of puncturation. Short oval (Fig. 3), dorsum dark brown, except a little lighter pronotal base and strips along elytral base and elytral suture. Antennomeres AI-AVI yellow-reddish, AVII-AXI brown-black. Legs yellow-red. Venter lightly chest-nut coloured.

Head. Dorsal surface with very fine irregularly distributed punctures separated by 4-5 times their own diameters on front an clypeus, smaller and finer punctures separated by about 6-10 times their own diameter on vertex. Very flat depression on each side of clypeus, some rare micro-punctures interposed. Last antennomere longer than wide, a little broader than previous one. AVII-AIX feebly asymmetrical, AX almost symmetrical. Ratio of length of antennomeres AII-AXI (AII=1.0): 1.0-1.0-0.5-0.5-0.5-0.7-1.3-1.3-1.3-2.5. Ratio of width of antennomeres AII-AXI (AII=1.0): 1.0-0.8-0.8-1.0-1.0-1.5-2.5-3.0-3.0-3.3. W/L AII-AXI: 0.7-0.5-1.0-1.3-1.3-1.5-1.3-1.5-1.5-0.9.

Pronotum. Sides almost conically tapered toward anterior angles in dorsal view; flatly round in lateral view. Posterior angles blunt tightly rounded in dorsal view; not detectable in lateral view. Base bowed backward. Puncturation even finer and sparser than on head; punctures separated by about 8-10 or more times their own diameter.

Elytra. Strongly convex with obtuse but very distinct lateral angle similar to that in the *Agathidium* Panzer, 1797, subgenus *Neoceble* Gozis, 1886. With very fine and sparse disarranged puncturation, punctures even sparser than those on pronotum, separated by more than 10 times their own diameters. Lateral elytral channels narrow, not simultaneously visible in dorsal view on along their entire length. Sutural striae developed reaching approximately half of elytral length.



Figs. 3-6. *Afroagathidium parvulum* sp. nov., 3 paratype, 4, 5 holotype: 3- body, dorsal view; 4- aedeagus, lateral view; 5- aedeagus, dorsal view; 6- spermatheca.

Legs. Femora and tibiae slim, lacking specific morphological characters. Tarsomeres II-IV of anterior and mid-legs very feebly broader than tarsomeres of posterior tarsi.

Mesoventrite. Anteriorly with central longitudinal, low but distinct carina, posterior part of mesoventrite deepened.

Membranous wings developed.

Metaventrite. Long, approximately as long as visible abdominal ventrite I-III. Smooth, micro-reticulate. With triangular risen area located near posterior margin of metaventrite with angle oriented caudally between hind coxae. Area surrounded by hardly visible lateral impressions resembling coxal lines typical e.g. for subgenus *Agathidium* s.str.

Genitalia. Aedeagus as in Figs. 4, 5. Parameres short, each paramere with two setae. Spermatheca in Fig. 6.

**Variability.** Female tarsomeres slim. The tegmen varies in the shape of its tip in lateral view from slightly turned up or straight to slightly deflexed below.

**Differential diagnosis.** *Afroagathidium parvulum* sp. nov. is similar to *A. kaszabi* Angelini & De Marzo, 1984 in the shape of the aedeagus and also the shape of spermatheca. The new species differs by the presence of the dorsal transversal depression visible in lateral view, by bicolorous antenna with brown-black antennal club distinctly darker than the yellow-red remaining antennomeres while antenna is unicolorous (testaceous) in *A. kaszabi*. *A. parvulum* also differs by the smaller body (1.2-1.4 mm) in comparison with *A. kaszabi* (1.5 mm).

**Etymology.** The name *A. parvulum* attract the attention to the small size of body of the new species (Latin word *parvulus* means tiny in English).



## *Pseudoagathidium Angelini, 1993*

### *Pseudoagathidium rhodesianum leleupi Angelini & De Marzo, 1985*

**Examined material:** (1 ♂), “MLW 15 C MALAWI 2018/ Mt. DEDZA, S14°21'42.3''/ E34°10'50.0''// sifting forest litter Winkler/ app., extraction 28.11./ 1370 m P. Baňář & P. Hlaváč lgt.”, (ZSPC); (1 ♀), “MLW/sift 08 S MALAWI 2018/ MULANJE MTS., Chambe plateau/ S15°54'18.7''E35°32'50.4'' sifting/ litter, Winkler app. extraction, 1953m/ 21.11. P. Baňář & P. Hlaváč lgt.”, (MMBC); (3 ♂♂, 4 ♀♀), “MLW/sift 14 S MALAWI 2018/ Mt. ZOMBA, S15°20'27.2''/ E35°16'29.1'' sifting forest litter/ Winkler app. extraction 27.11./ 1878m, P. Baňář & P. Hlaváč lgt.”, (MMBC, ZSPC).

**Distribution:** Zaire, Rwanda, RSA, Malawi. New record for Malawi.

### *Pseudoagathidium ivani Angelini, 1996*

**Examined material:** (4 ♂♂, 3 ♀♀), “MLW 16 C MALAWI 2018/ Mt. DEDZA, S14°21'13.4''/ E34°19'36.3''// sifting forest litter Winkler/ app., extraction 2032 m/ 29.11. P. Baňář & P. Hlaváč lgt.” (MMBC, ZSPC); (1 ♂, 1 ♀), “MLW/sift 13 S MALAWI 2018/ Mt. ZOMBA, S15°20'37.2''/ E35°16'40.2'' sifting forest litter/ Winkler app. extraction 27.11./ 1846m, P. Baňář & P. Hlaváč lgt.” (MMBC, ZSPC).

**Distribution:** Uganda, Malawi. New record for Malawi.

## *Colenisia Fauvel, 1903*

### Key to African *Colenisia* species

- 1 Elytral punctures tend to form rows. Body oval. Elytra as broad as long. ....2
- Elytra irregularly punctured. Body broadly oval. Elytra broader than long. ....3
- 2(1) Rows of elytral punctures simple, punctures sparsely arranged, separated by about 4 times their own diameter. Parameres shorter than tegmen. 1.3 mm. Tanzania. ....*C. tanzaniae* Švec, 1997
- Rows of elytral punctures double, punctation dense, punctures separated by about 1 time their own diameter. Parameres longer than tegmen (Fig. 8). Length 1.6-1.8 mm. Malawi. ....*C. blattoides* sp. nov.
- 3(1) Antennal club dark, brown or brown-black. ....4
- Antennal club lightly coloured, yellow-brown or reddish. Dorsum brown-black. Tegmen conically narrowed distally with distinct rounded process apically. Length 1.1-1.3 mm. Rwanda. ....*C. muehleiana* Daffner, 1987
- 4(3) Antenna long, if oriented behind, reach almost pronotal base. ....5
- Yellow-brown antenna short with stout, brown club reaching approximately middle of pronotal length. Elytral punctation and ciliature sparse and fine. Dorsum brown-black. Male unknown. Length 1.2-1.3 mm. Congo. ....*C. reticulata* Hlisenikovsky, 1968
- 5(4) Dorsum red-brown or dark red-brown. Tegmen roundly narrowed to broadly rounded top or with small nipple on apex. ....6
- Dorsum brown-black. Tegmen conically narrowed distally to roof-shaped top. Length 1.4-1.6 mm. Rwanda, Congo. ....*C. nigrofusca* Daffner 1987

- 6(5) Body larger, 1.7 mm, very broadly oval, elytra almost 1.5 times as broad as long. Tegmen broadly rounded on apex. Rwanda. .... *C. ferruginea* Daffner, 1987  
 - Body smaller, 1.1-1.3 mm, broadly oval, elytra a little broader than long. Tegmen with very small nipple apically. Ghana. .... *C. ghanica* Daffner, 1987

***Colenisia blattoides* sp. nov.**

(Figs. 7-9)

**Type material.** Holotype (♂): “TANZANIA Nguru Mts/ at Turiani, S06°02’33’’/ E037°32’20’’, 1.xi.2010./ 1059 m, sifting 04/ V. Grebennikov lgt.”, (MMBC). Paratypes: (6 ♂♂, 8 ♀♀): the same data, (MMBC, ZSPC).

**Description.** Length 1.6-1.8 mm, 1.8 mm in holotype. Length of body parts in holotype: head 0.3 mm, pronotum 0.5 mm, elytra 1.0 mm, antenna 0.5 mm, aedeagus 0.44 mm. Spermatheca 0.13 mm. Maximum width of body parts in holotype: head 0.5 mm, pronotum 1.0 mm at base, elytra 1.0 at quarter half of their length. Dorsum with micro-sculpture. Oval (Fig. 7), dorsum chest-nut coloured, pronotum a little darker than elytra. Antennae lightly yellowish-brown, legs chest-nut coloured. Venter chest-nut coloured, abdomen a little lighter.

Head. Dorsal surface micro-sculptured by irregular parallelograms, puncturation irregular, punctures separated by 2-6 times their own diameters on clypeus and front, puncturation a little denser caudally. Punctures transversally protracted on vertex. Near each eye with two large punctures medially. Antenna short, if oriented behind reach approximately half pronotal length. Last antennomere longer than wide, narrower than previous one. AVIII well visible between the neighbours, shorter than other club antennomeres. Ratio of length of antennomeres AII-AXI (AII=1.0): 1.0-1.0-0.3-0.4-0.4-0.8-0.4-0.9-0.9-1.3. Ratio of width of antennomeres AII-AXI (AII=1.0): 1.0-0.6-0.6-0.6-0.6-1.3-1.0-1.6-1.8-1.6. W/L AII-AXI: 0.6-0.4-1.5-1.0-1.0-1.0-1.7-1.1-1.3-0.8.

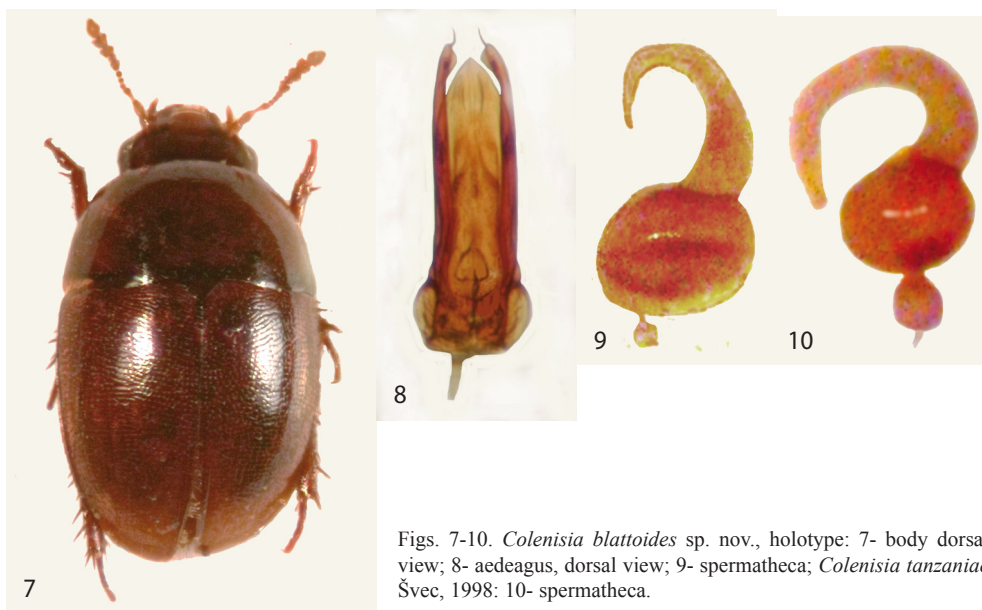
Pronotum. Sides almost conically narrowed anteriorly in basal half of pronotal length, then roundly tapered toward anterior angles in dorsal view; flatly rounded in lateral view. Posterior angles feebly acute rounded in dorsal view; obtuse, rounded in lateral view. Base almost straight feebly bowed backward. Dorsal surface micro-sculptured by transverse strigosity. Strigosities a little finer and denser than those on head. Puncturation fine irregular, punctures transversally protracted, separated by about 2-6 times their own diameter. Puncturation sparser on basal half.

Scutellum. With micro-strigosities similar as those on pronotum.

Elytra. With distinct transverse strigosity, sparser and more distinct than on pronotum, strigosity separated by about 0.01 mm. Punctures tend to seriate in irregular double striae. Strial punctures separated predominantly by about one time their own diameter longitudinally. Interval punctures finer and smaller than strial punctures, separated by about one time their diameters, tending to seriate in one or two irregular striae. Lateral elytral channel narrow, simultaneously visible posteriorly. With sutural striae feebly expressed on posterior third of elytral length.

Legs. All tibiae slim, tarsomeres TI-TIV of anterior and intermediate legs, distinctly widened with long and dense tennent setae. Meso-tibiae of usual size and shape, meta-femur and meta-tibiae without any specific character.

Mesoventrite. Longitudinal carina feebly convex in lateral view.



Figs. 7-10. *Colenisia blattooides* sp. nov., holotype: 7- body dorsal view; 8- aedeagus, dorsal view; 9- spermatheca; *Colenisia tanzaniae* Švec, 1998: 10- spermatheca.

Membranous wings developed.

Metaventricle. Densely punctured on its central part, punctures, bearing short hairs, separated by about 2 times their own diameter. Lateral sides of metaventricle glabrous, micro-sculptured by regular micro-reticulation.

Genitalia. Aedeagus with distinctive hearth-shaped endophallic sclerite as in Fig. 8. Parameres longer than tegmen, widened apically, bearing one terminal seta. Spermatheca as in Fig. 9.

**Variability.** Female tarsomeres slim. Colour of dorsum and antenna varies - dorsum from chest-nut to brown-black, antenna from lightly yellowish-brown to unicoloured red-brown.

**Differential diagnosis.** *Colenisia blattooides* sp. nov. is most similar to *C. nigrofusca* Daffner, 1987 in the size of body and colour of dorsum, nevertheless the new species differs distinctly from all the up to now known *Colenisia* from Africa by the oval shape of body and by the very long parameres that are longer than tegmen, while all the African species possess parameres distinctly shorter than tegmen. Also the shape of endophallus is specific in the new species.

**Etymology.** As the shape of body and also the spines located on tibiae of the species can resemble a small cockroach, the name of the new species is derived from the Latin word *Blatta* (cockroach) and *-oides*, Latin descendant of the ancient Greek word εἶδος (appearance).

## *Colenisia tanzaniae* Švec, 1998

(Fig. 10)

**Material examined:** (1 ♂), “TANZANIA Nguru Mts/ at Turiani, S06°02'33"/ E037°32'20", 1.xi.2010./ 1059 m, sifting 04/ V. Grebennikov lgt.”, (MMBC); (17 ♂♂, 17 ♀♀, 3 spec.), MLW/sift 08 S MALAWI 2018/ MULANJE MTS., Chambe plateau/ S15°54'18.7" E35°32'50.4" sifting/ litter, Winkler app. extraction, 1953m/ 21.11. P. Baňaf & P. Hlaváč lgt.”, (MMBC, ZSPC).

**Distribution:** Tanzania, Malawi. New record from Malawi.  
First find since the date of the original description.

### DISCUSSION

Champion (1925) briefly described *Anogdus trimeni* from Southern Africa. The original description of the species did not provide enough information about the generic belonging. The presence of *Anogdus* in Africa is very doubtful. Altogether 17 of 18 known species of the genus occur in the North and the Central America. Peck (2003), who checked the holotype, got to a conclusion, that the Champions “*Anogdus*” was in fact a different, not identified genus belonging to the *Leiodes* generic group. Therefore *Anogdus* is not contained in the generic key provided above.

The status of the genus *Afroleiodes* can also be discussed. The genus was described by Peck in 2003 who presented the generic diagnosis. Among the generic characters, there were heavily punctured pronotum, elytra, rugose punctured head, elytral striae 2-5 sinuous near base, broad femora, metatibia exceptionally short, greatly expanded to apex. The other generic characters indicated that the genus belongs to the *Leiodes* generic group. Švec (2008) described *Leiodes zimbabwensis* from the South of Africa later. The species showed all the basic morphological characters usual in the genus *Leiodes* including the type of puncturation, and shape of legs. On the other hand the 3<sup>rd</sup> and 4<sup>th</sup> elytral striae are sinuate in basal part. This character resembles *Afroleiodes*. The main character of *Leiodes zimbabwensis*, agreeing well with both up to now known species of *Afroleiodes* is the general appearance of the tegmen. The tegmen in *L. zimbabwensis* and also in both known *Afroleiodes* is opened apically similarly as e.g. in *Zeadolopus*. Although the shape of aedeagus is not especially pointed in the Peck's diagnosis of *Afroleiodes*, this can perhaps be an important character of the genus. The question if the difference of the aedeagal shape in all the known *Leiodes* (except of *L. zimbabwensis*) and *Afroleiodes* is enough to separate both genera still lasts. Nevertheless it is possible that future findings of sub-Saharan species of *Leiodes* or *Afroleiodes* species will help to improve the nomenclatural relationship of both genera.

The similarity of the spermatheca shapes in *Afroagathidium parvulum* sp. nov. and *A. kaszabi* is mentioned in the paragraph “Differential diagnosis” included in the description of the new species. Females and therefore shapes of spermatheca of three of four described species of the genus are known. In fact, the shape of spermatheca of all up to currently known species is extremely similar. Taking into account the variation (Angelini & Peck, 1984), the shapes of spermatheca in *A. kaszabi*, *A. capense* and *A. parvulum* are identical. Only future findings of females of *A. zairensis* or even females of a new species of the genus



can answer the question if the shapes of spermatheca in *Afroagathidium* can show any specific characters.

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