

AFROTROPICAL SPECIES OF CHAETOPODELLA DUDA
(DIPTERA: SPHAEROCERIDAE)

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Five new species of the genus *Chaetopodella* DUDA, 1920: *Ch. keniaca* sp. n. (Kenya), *Ch. reducta* sp. n. (Tanzania), *Ch. aethiopica* sp. n. (Ethiopia), *Ch. demeteri* sp. n. (Nigeria) and *Ch. nigeriae* sp. n. (Nigeria) are described. *Afrochaetopodella* subgen. n. is proposed (type species: *Chaetopodella reducta* sp. n.). Lectotype of *Ch. denigrata* (DUDA, 1920) is designated. A key is given for the Afrotropical species. With 51 original figures.

Key words: Sphaeroceridae, Limosininae, *Chaetopodella*, new species, new subgenus, taxonomy, key, Afrotropical Region

INTRODUCTION

The Afrotropical species of Sphaeroceridae are rather unevenly known. While it seems not probable to find new genera in the subfamilies Sphaerocerinae and Copromyzinae, species of the largest subfamily Limosininae are meagrely known (cf. ROHÁČEK *et al.* 2001).

The generic distinctness of *Chaetopodella* DUDA, 1920 was corroborated by ROHÁČEK (1983). HAYASHI and PAPP (2007) has recently described four new species from the Oriental region and improved the diagnosis of the genus. In the World Catalogue of Sphaeroceridae (ROHÁČEK *et al.* 2001) a complete bibliography for the taxonomy and nomenclature of the genus was given.

Chaetopodella has been represented by only 4–5 species in the Afrotropical region (cf. ROHÁČEK *et al.* 2001) but at least the records of one of them (*Ch. scutellaris*) were based on misidentifications. Five additional (new) species were recognised during the study of the Afrotropical material of *Chaetopodella*, two of them markedly differing from all other known species. A new subgenus is established for this distinctive clade.

Terminology of male genitalia follows SINCLAIR (2000) whenever possible; in some cases ROHÁČEK (1998) was consulted.

Our annotations of label data and those of the preservation of the specimens are given in brackets below (handwriting in quotation marks). The type specimens are deposited in the collection of the Diptera Collection of the Department of Zoology, Hungarian Natural History Museum, Budapest (HNHM).

Chaetopodella DUDA, 1920

Chaetopodella DUDA, 1920: 435 [as subgenus of *Limosina* MACQUART, 1835].

Type species: *Limosina scutellaris* HALIDAY, 1836: 329 (mon.).

Chaetopodella DUDA, 1920: HACKMAN (1969: 203), ROHÁČEK (1983: 112), etc., as genus.

ROHÁČEK (1983) discussed correctly its morphology, incl. that of the genitalia. Characters of the genus were corroborated and supplemented by HAYASHI and PAPP (2007).

The *Chaetopodella* species are distributed in the Palaearctic (by its type species only), in the Oriental (HAYASHI & PAPP 2007) and in the Afrotropical regions (HACKMAN 1969). As we wrote there, the status of the *Leptocera* (*Chaetopodella*) *albocincta* RICHARDS, 1964 (from the Solomon Is, Vanuatu) needs revision. The Neotropical species *Leptocera biseta* DUDA, 1925 has been transferred to the genus *Gyretria* ENDERLEIN, 1938 (cf. ROHÁČEK *et al.* (2001). *Leptocera* (*Chaetopodella*) *tonsa* DUDA, 1925 from Costa Rica belongs to an undescribed genus (see MARSHALL 2001).

Hitherto four Afrotropical species have been described: *Ch. cursoni* (RICHARDS, 1939), *Ch. denigrata* (DUDA, 1925), *Ch. impermissa* (RICHARDS, 1980) (syn. *Ch. congensis* (VANSCHUYTBROECK, 1950)) and *Ch. lesnei* (SÉGUY, 1933). *Chaetopodella scutellaris* (HALIDAY, 1836) was also recorded from the Afrotropical region (see RICHARDS 1980) but all these records were obviously based on misidentifications (see below).

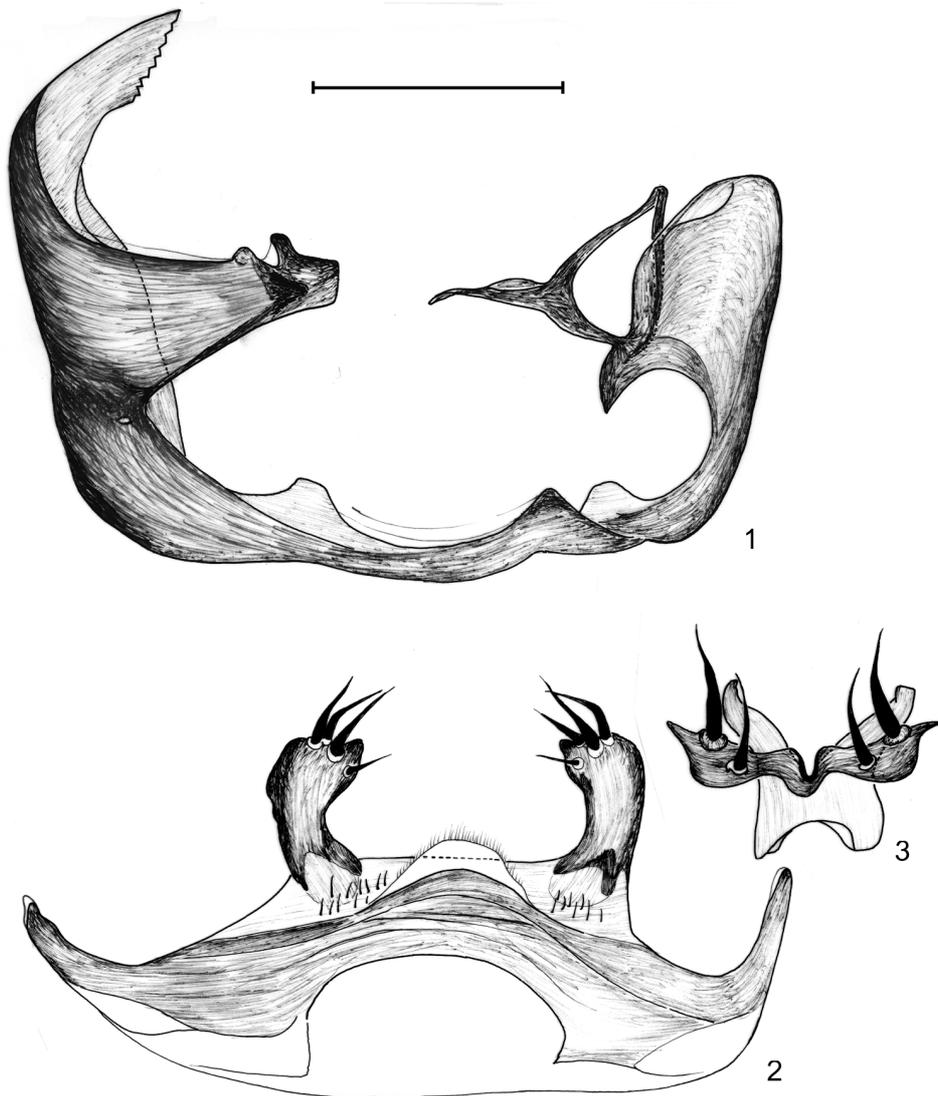
This paper includes descriptions of a new subgenus and of five new species. Having had the experience with the females of *Chaetopodella* that they are difficult to differentiate, particularly so for those species pairs as *Ch. cursoni* and *Ch. aethiopica*, the importance of the male genital characters are stressed. The features, which seem proper in the identification of the specimens (both males and females) are given in the key below.

KNOWN SPECIES OF CHAETOPODELLA DUDA, 1920

Chaetopodella cursoni (RICHARDS, 1939) – Material studied: RSA, leg. L. Papp & M. Földvári 2007 (HNHM): 13 males 14 females [abdomen and genitalia of one male in a plastic microvial with glycerol]: Eastern Cape Prov., Shamwari Game Reserve, on elephant dung, Jan 11, S33° 24' 47.0'' E26° 05' 45.0'', 301 m, No. 14; 3 males 5 females: Eastern Cape Prov., Hogsback, stony hillside with cow pats, Jan 9, S32° 36' 23.5'' E26° 57' 55.3'', 1101 m, No. 11, leg. L. Papp; 11 males 7 females: Eastern Cape Prov., Sandvlakte Farm nr Paterson, cattle pasture, on cow pats, Jan 12, S33° 26' 14.2'' E25° 56' 54.8'', 300 m, No. 18; 1 male 1 female: KwaZulu Natal, S Drakensberg, roadside ruderalia nr Lime Farm, Jan 21, GPS23, S29° 49' 47.9'' E29° 19' 36.9'', 1711 m, No. 30; 2

males 3 females: KwaZulu Natal, N Drakensberg, Cathedral Peak Park, on cow pats, Jan 31, GPS33, S28° 55' 55.7" E29° 16' 06.2", 1359 m, No. 47. 60 specimens.

If we compare the genitalia (Figs 1–6) to those of the Afrotropical species, *Ch. cursoni* does not seem too far from *Ch. aethiopica* sp. n. Sclerotized parts of

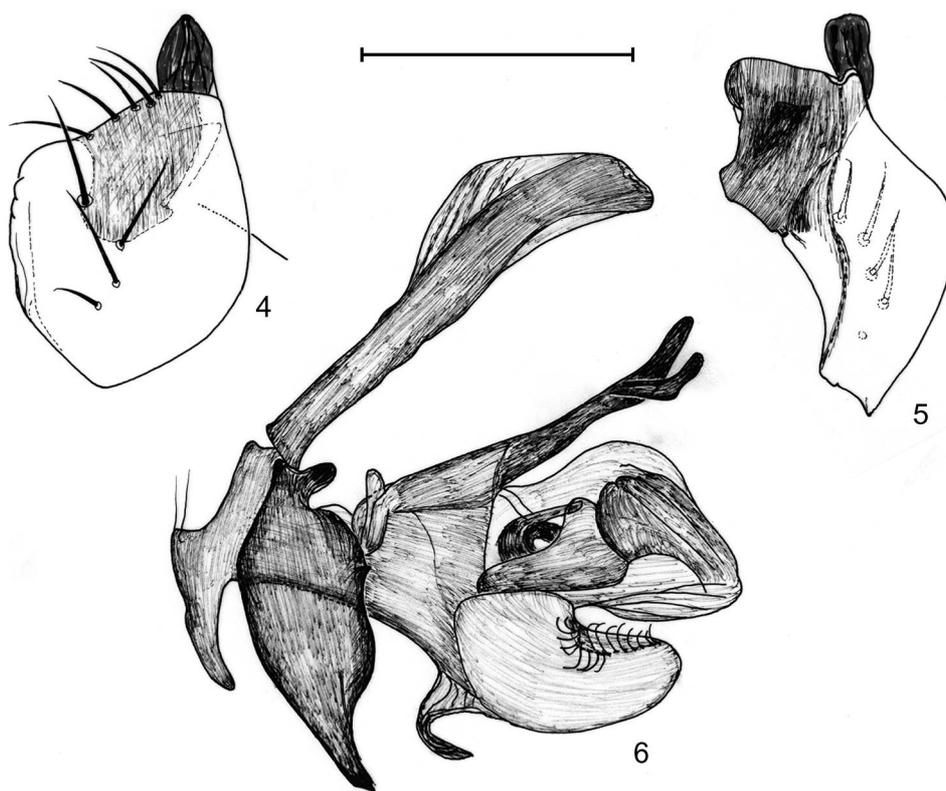


Figs 1–3. *Chaetopodella (Ch.) cursoni* (RICHARDS), male postabdomen and genitalia. 1 = ventral parts of syntergosternite 6–8, subventral view, 2 = 5th sternite, ventral view, 3 = subanal plate, caudal view. Scales: 0.1 mm

syntergosternite 6–8 (pregenital sclerites, Fig. 1) almost meet medially. Male sternite 5 (Fig. 2) comparatively long, caudal processes medium-long. Caudal processes with 3 + 1 thick long setae; medial apical edge forms a blunt process. Subanal plate (Fig. 3) with two pairs of long, slightly laterally curved thorns. Surstylus (Figs 4–5) compact sub-quadratic at broadest view (almost only the lateral lobe visible), lateral lobe large, caudal (basal) lobe blunt. Distiphallus (as in all its congeners) with a pair of long bifid processes, phallapodeme robust. Epiphallus hook-like with blunt apex. Postgonite broad basally, apical third narrow with a distinct though not sharp apex.

Chaetopodella lesnei (SÉGUY, 1933) is possibly a senior synonym (see below).

Chaetopodella denigrata (DUDA, 1925) – Material studied: lectotype male (designated here): Africa or., Katona904 [actually Kálmán Kittenberger 1904] – Kilima-Ndjaro [on the reverse side] “X.” – [a dirty white label of 15×10 mm, DUDA’s handwriting] “*Chaetopodella denigrata* ♂ n. sp.”



Figs 4–6. *Chaetopodella* (*Ch.*) *cursoni* (RICHARDS), male postabdomen and genitalia. 4–5 = surstylus: 4 = in the broadest (sublateral) view, 5 = ventral view; 6 = phallic complex (inner genitalia), lateral view. Scales: 0.1 mm

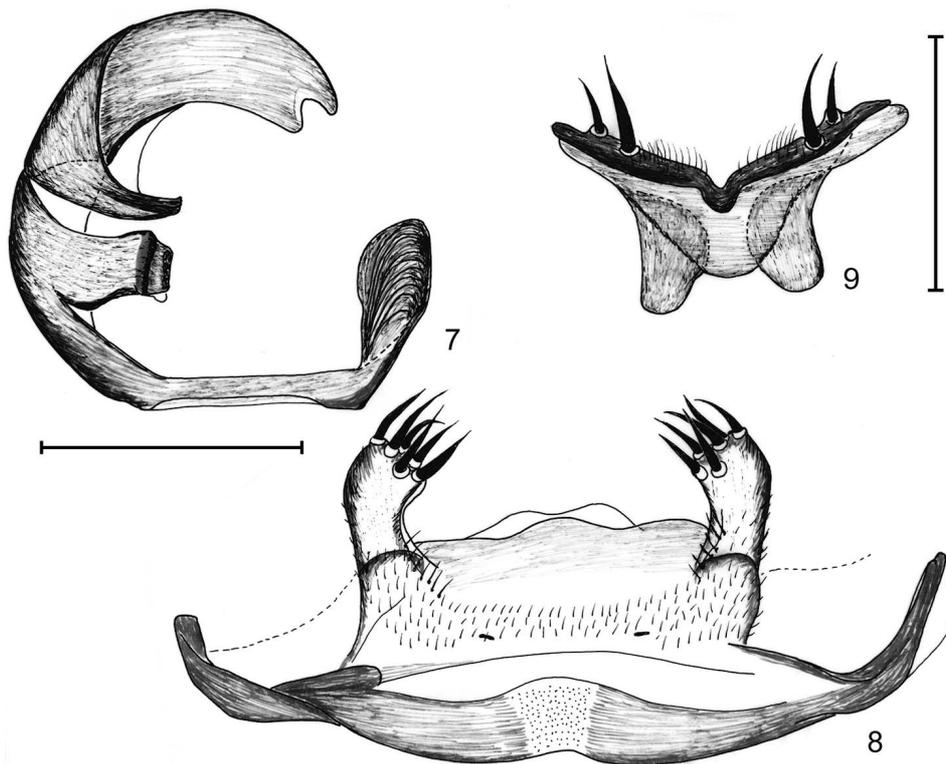
DET. DR. O. DUDA – [red] TYPUS – [red bordered HNHM label] Lectotypus “♂ *Chaetopodella denigrata* (Duda, 1925) [on the reverse side] “designated by L. Papp”; paralectotypes: 1 male 1 female: first two labels are the same as for LT; “*Chaetopodella denigrata* ♂/♀” DET. DR. O. DUDA; with red bordered Paralectotypus labels of the HNHM.

The lectotype designation was made in order to fix the specific status of a taxonomically important species.

Other material: 1 male (HNHM): Abyssinia, Kovács – Dire-Daua, “1911.11.19.” – “*Chaetopodella scutellaris* Hal.” Det. Dr. O. DUDA. Ethiopia, leg. [András] DEMETER, 1980 (HNHM): 1 male: Addis Abeba 16. IX.; 2 males 1 female: Addis Abeba, Akaki river, 13.XI./29. IX.; 3 males 2 females: Lake Langano 12. X. [abdomen and genitalia of one male in a plastic microvial with glycerol].

The measurements on the lectotype (in mm): body length 1.87, wing length 1.54, wing width 0.63.

In order to make later identifications more safely, I prepared six figures (Figs 7–12) on the genitalia of a male. Right part of the syntergosternite 6–8 (tergite 7 and a part of sternite 6) without medially directed sclerotized parts (Fig. 7). The main (cranial) part of sternite 5 not long, caudal processes rather long, apically with 5 + 1



Figs 7–9. *Chaetopodella (Ch.) denigrata* (DUDA), male postabdomen and genitalia. 7 = pregenital sclerites, ventral view, 8 = 5th sternite, ventral view, 9 = subanal plate, caudal view. Scales: 0.2 mm for Fig. 7, 0.1 mm for Figs 8–9

(pairs) of thick thorn-like setae (Fig. 8). Medial membranous part without cilia (as in *Ch. scutellaris*). Subanal plate (Fig. 9) with one pair of a medial medium-long and one pair of short lateral thorn-like setae. Both lateral and caudal (basal) lobe of surstylus (Figs 10–11) with some long setae, surstylus most medially with an even longer seta. Dorsal long process of distiphallus with an asymmetrical fork, lateral branch dilated apically (Fig. 12). Epiphallus not short but quadrate apically with sharp apex. Postgonite elongate with bicuspid (not sharply) apex.

This seems to be the closest relative of the Palaearctic species, *Ch. scutellaris* (HALIDAY, 1836). It can be distinguished (without a study of the male genitalia) from it, based on the chaetotaxy of mid tibia: it has a pair of setae proximally to the distal *ad*–*pd* pair. The longer seta is anterodorsal, the shorter one is in dorsal position; the dorsal one is missing in *Ch. scutellaris*. The latter species – though widely distributed in the Palaearctic Region, see HAYASHI and PAPP (2007) – does not occur in the Afrotropical Region. The source of those kinds of occurrence data has been misidentifications; one of them is revised above.

Chaetopodella impermissa (RICHARDS, 1980) (syn. *Ch. congensis* (VANSCHUYTBROECK, 1950), cf. ROHÁČEK *et al.* (2001) – In the HNHM there is a paratype of *Ch. congensis* with the following label data: W. Ruwenzori: Kalonge, XII–1932, Dr. Van Hoof – R. DET. 5662E – P. Vanschuytbroeck det 1950 – “Chaetopodella ♂ congensis nsp.” [Vanschuytbroeck’s handwriting] – [red] Paratype – “cf. Ann. Mus. Congo ser 8° – Vol. 5. 1950. pp. 33.” [5 labels]. Contrary to its label it is a female specimen.

Chaetopodella lesnei (SÉGUY, 1933) – It was described from Mozambique (cf. ROHÁČEK *et al.* 2001). An obscure species; it cannot be excluded that it is a senior synonym of *Ch. cursoni* (RICHARDS, 1939). Inasmuch as this synonymy remains unconfirmed, I would prefer to use the latter name, since its identity has always been clear.

Afrochaetopodella subgen. n.

(Figs 13–26)

Type species: *Chaetopodella reducta* sp. n. (here designated).

Gender: feminine.

Other species included: *Ch. keniaca* sp. n.

In a number of characteristics it is similar to the nominate subgenus. The most important differences are as follow (most of them are synapomorphies): All inter-frontal setae short. Anterior fronto-orbital seta minute. Mid trochanter with a lateral seta, which is shorter than trochanter. Wings clear but not milky. Costal setae between veins H and R₁ short, much shorter than width of costal cell. Discal cell narrow and very long. Abdomen (preabdomen) very long, male sternite 5 with a pair of 3-lobed caudal processes (Figs 14–15, 20–21). Subepandrial sclerite with-

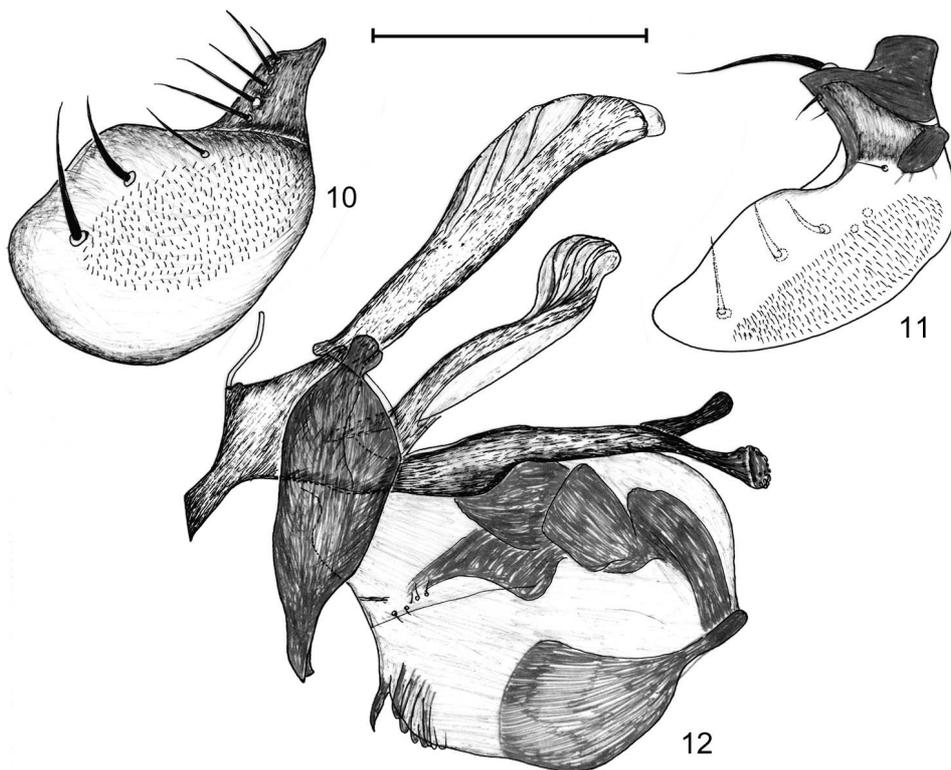
out strong thorn-like setae (Fig. 24) (that must be a reduction, i.e. a synapomorphy). Male genitalia small. Postgonites robust with several edges or tips (Figs 17, 25).

The subgeneric name refers to the distribution of the two species presently included.

***Chaetopodella (Afrochaetopodella) keniaca* sp. n.**
(Figs 13–18)

Holotype male (HNHM): KENYA: Shimba Hills Nat. Park, 2003. 02. 25., leg. MAHUNKA S. – PAPP L. [Lujza] [abdomen and genitalia in a plastic microvial with glycerol].

Measurements in mm: body length 1.54, wing length 1.32, wing width 0.47.



Figs 10–12. *Chaetopodella (Ch.) denigrata* (DUDA), male postabdomen and genitalia. 10–11 = surstylus: 10 = in the broadest (sublateral) view, 11 = in ventral view; 12 = phallic complex (inner genitalia), lateral view. Scale: 0.1 mm

Head with anterior 1/3 of frons yellow, other frons dark brown. Face whitish yellow, gena yellow. Three pairs of short interfrontals. Antenna dark brown, incl. scape. Arista 0.58 mm long. Vibrissa strong. Genal setae sparse but comparatively long.

Mesonotum microtrichose dark brown with one sagittal and two dorsocentral stripes less microtrichose, i.e. more shiny. Postpronotum, lateral half of notopleura and a small supra-alar area yellowish. Pleura lighter than mesonotum, particularly so for ventral edges of anepisternum, anepimeron and metapleural parts. Three pairs of dorsocentrals, shortening anteriorad. Scutellum 0.24 mm long, 0.31 mm wide, lateral scutellars 0.27 mm, apical scutellars 0.47 mm long. Posterior katepisternal seta 0.22 mm long.

Wing 2.79 times longer than broad. Wing brownish, veins light brown, including costa. Microcilia of membrane rather strong. Strong subbasal seta on costa only 0.115 mm long. Setae on first costal section only 0.03 mm long. Discal cell with a distinct small caudal vein appendage. R-M – dM-Cu : dM-Cu = 19.5/6 = 3.25. Halter white.

Legs ochreous, only tarsi darker (brown). Lateral seta of mid trochanter 0.10 mm.

Male sternite 5 comparatively long but not broad (Fig. 14), its caudal pair of processes large three-lobed fork, the medial one being the longest, lateral process with 3 long setae (Fig. 15). No extremely long setae on sternite 5. Right part of the syntergosternite 6–8 (tergite 7 and a part of sternite 6) forms a narrow but long re-curved sclerotized process; dorsal part of the syntergosternite large, left lateral and ventral parts almost completely segregated (Fig. 13). Surstylus (Fig. 16) rather compact in two lobes with a number of processes but with only 1 long setae. Postgonite (Fig. 17) thick, medium-long with blunt apex and small swellings dorsally. Apical part of the dorsal process of distiphallus (Fig. 18) with blunt, rather short fork apically.

Etymology. The specific epithet refers to its type locality, Kenya.

***Chaetopodella (Afrochaetopodella) reducta* sp. n.**

(Figs 19–26)

Holotype male (HNHM): Tanzánia, Meru, 1979. II-III., leg. [Miklós] EÖRY – [György] SIPOS [abdomen and genitalia in a plastic microvial with glycerol].

Measurements in mm: body length 1.70, wing length 1.52, wing width 0.55.

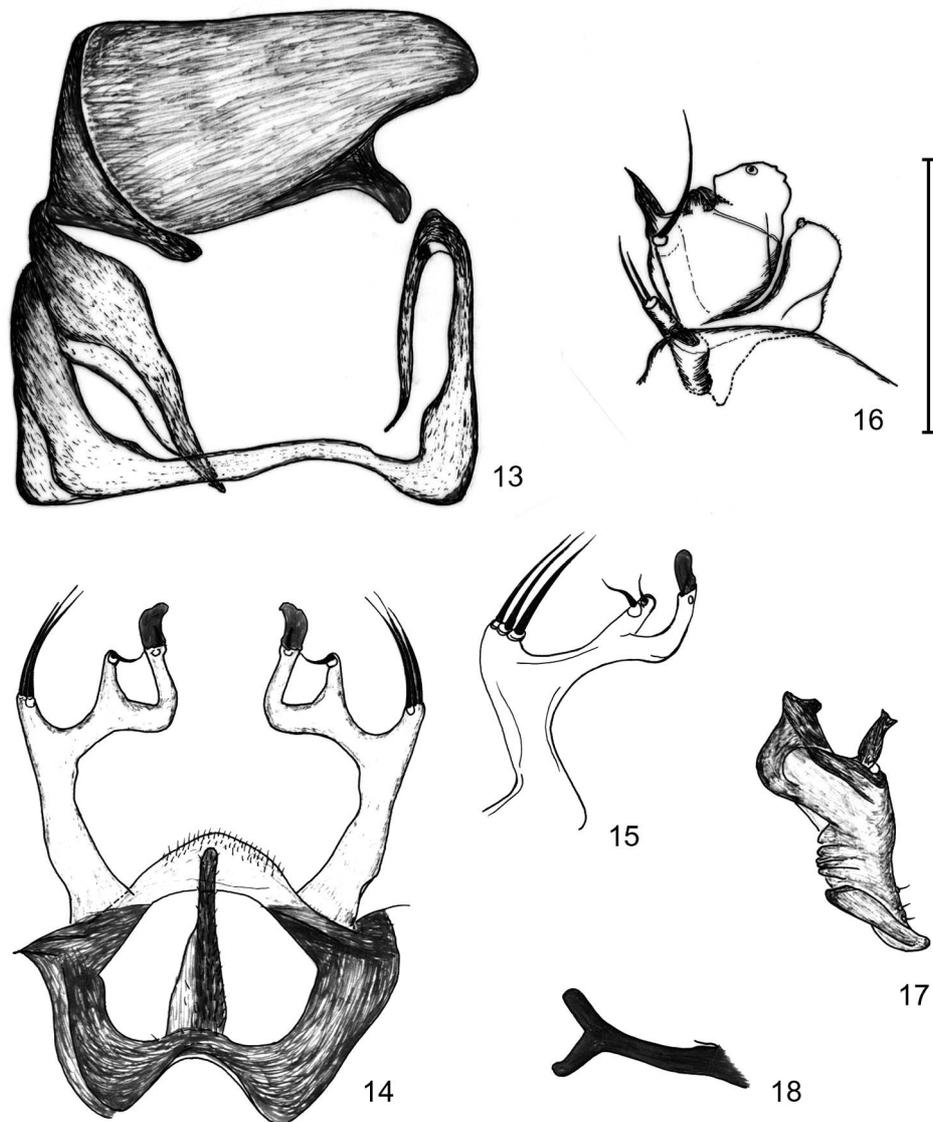
Frons dark brown, anterior 1/5 reddish yellow. Ocellar triangle with frontral stripe subshiny. Face whitish yellow. One single medial interfrontal seta (not cruciate). Anterior fronto-orbital minute thin 0.04 mm long, posterior pair thick, 0.13 mm long. Gena and cheeks yellow, posterior part of gena yellowish grey. Genal setae sparse but comparatively long. Antennae dark brown, incl. base of scape.

Mesonotum dark brown, scutellum velvety black. Pleura also dark brown, only notopleural area diffusely lighter (yellowish). Anterior katepisternal 0.09 mm, posterior one 0.20 mm, but rather thin. Both apical scutellars broken on the holotype, lateral scutellar 0.25 mm; scutellum shorter than broad (0.24 vs 0.30 mm).

Wing 2.76 times longer than broad. Wing yellowish, veins yellow, including costa. Medial and cubital veins rather whitish. Strong sub-basal seta on costa only 0.09 mm. Discal cell with a small caudal vein appendage. R-M – dM-Cu : dM-Cu = 3.23. Halter white, stalk light yellow.

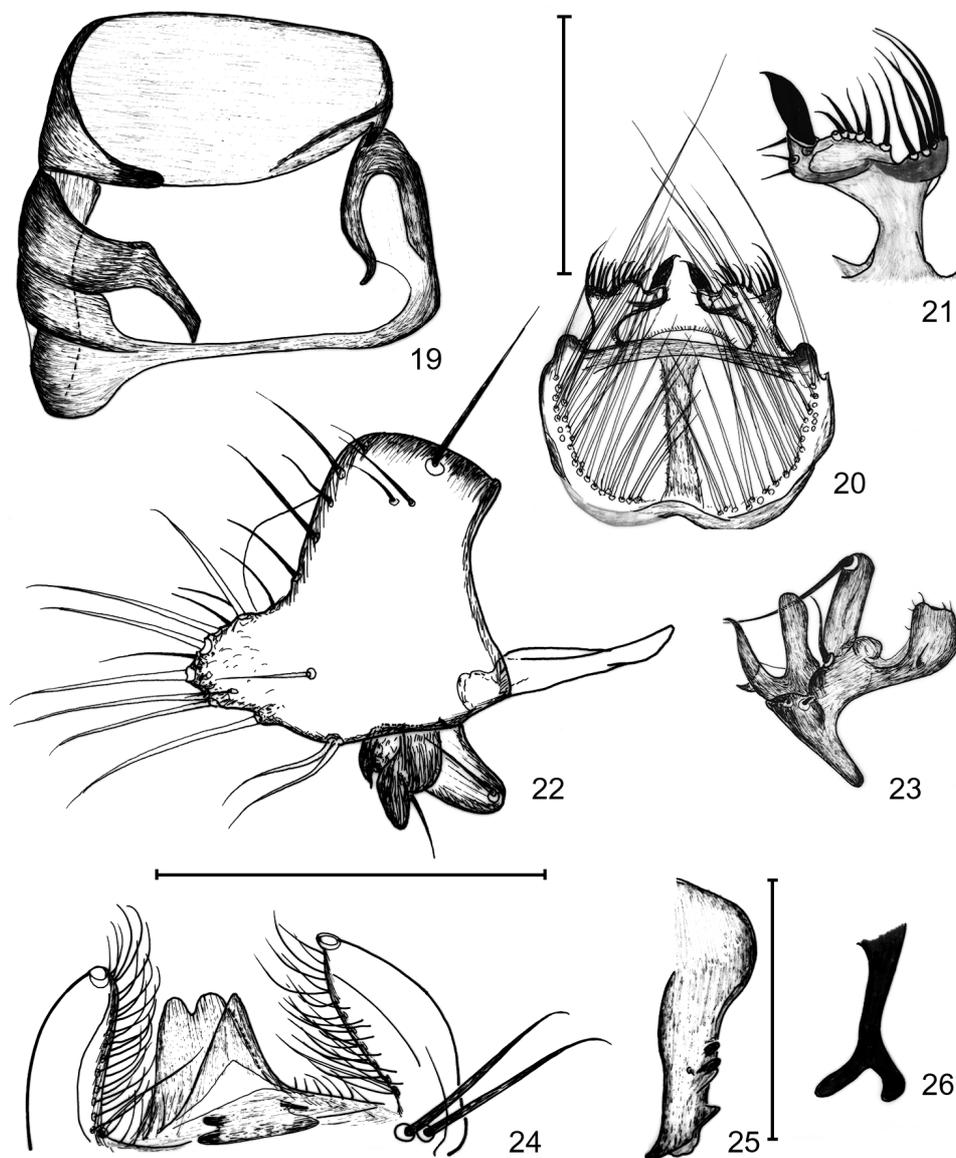
Mid trochanter with a short lateral seta (only 0.06 mm).

Male sternite 5 long but not broad (Fig. 20), peculiar with its very long light setae (longest ones longer than width of sternite), caudal pair of processes large, three-lobed, like in *Ch. keniaca*, but not



Figs 13–18. *Chaetopodella (Afrochaetopodella) keniaca* sp. n., holotype male, postabdomen and genitalia. 13 = syntergosternite 6–8, ventral view, 14 = 5th sternite, ventral view, 15 = caudal process of sternite 5, broadest view, 16 = surstylus at broadest (a subantral-sublateral outer view), 17 = postgonite, broadest (= lateral) view, 18 = apical part of the dorsal process of distiphallus, subdorsal view.

Scale: 0.1 mm for all



Figs 19–26. *Chaetopodella (Afrochaetopodella) reducta* sp. n., holotype male, postabdomen and genitalia. 19 = syntergosternite 6–8, ventral view, 20 = 5th sternite, ventral view, 21 = caudal process of sternite 5, broadest (sublateral) view; 22 = genitalia, lateral outer view, 23 = surstylus, broadest (a sublateral medial) view; 24 = apical half of epandrium, anterior view, 25 = postgonite, broadest (sublateral) view, 26 = apical part of the dorsal process of distiphallus, broadest view. Scales: 0.2 mm for Figs 19, 22, and Fig. 20, respectively, 0.1 mm for Figs 21, 23–26

long, the medial one bearing a large thorn, middle one with medium-long setae and lateral processes with longer setae (Fig. 21). The more sclerotized (melanized) right part of the sytergosternite 6–8 (tergite 7 and a part of sternite 6) forms a narrow but long re-curved sclerotized process; dorsal part of the sytergosternite large, sternite 7 and sternite 8 almost completely segregated (Fig. 19). Epandrium (Fig. 22) with a large ventral caudal process, which bears 7 very long light setae (longest 0.12 mm); caudally to surstylar base 2 similar setae (Figs 20, 22). Apical half (medial surface of epandrium with numerous long setae (Fig. 24). Surstylus (Fig. 23) rather compact with a number of processes but without long setae. Postgonite (Fig. 25) thick, rather long with sharp apex, a subapical posterior tooth and small swellings dorsally (posteriorly). Apical part of the dorsal process of distiphallus (Fig. 26) with blunt, rather short fork apically, similar to that of *Ch. keniaca*.

Remark. There are no more data on its locality label. It seems probable that it was captured on elephant dung.

Etymology. The specific epithet refers to the reduced frontal chaetotaxy of this species.

NEW SPECIES OF THE SUBGENUS CHAETOPODELLA DUDA, 1920

***Chaetopodella aethiopica* sp. n.**

(Figs 27–33)

Holotype male (HNHM): Ethiopia, Lake Langano – 12. X. 1980, leg. [András] DEMETER.

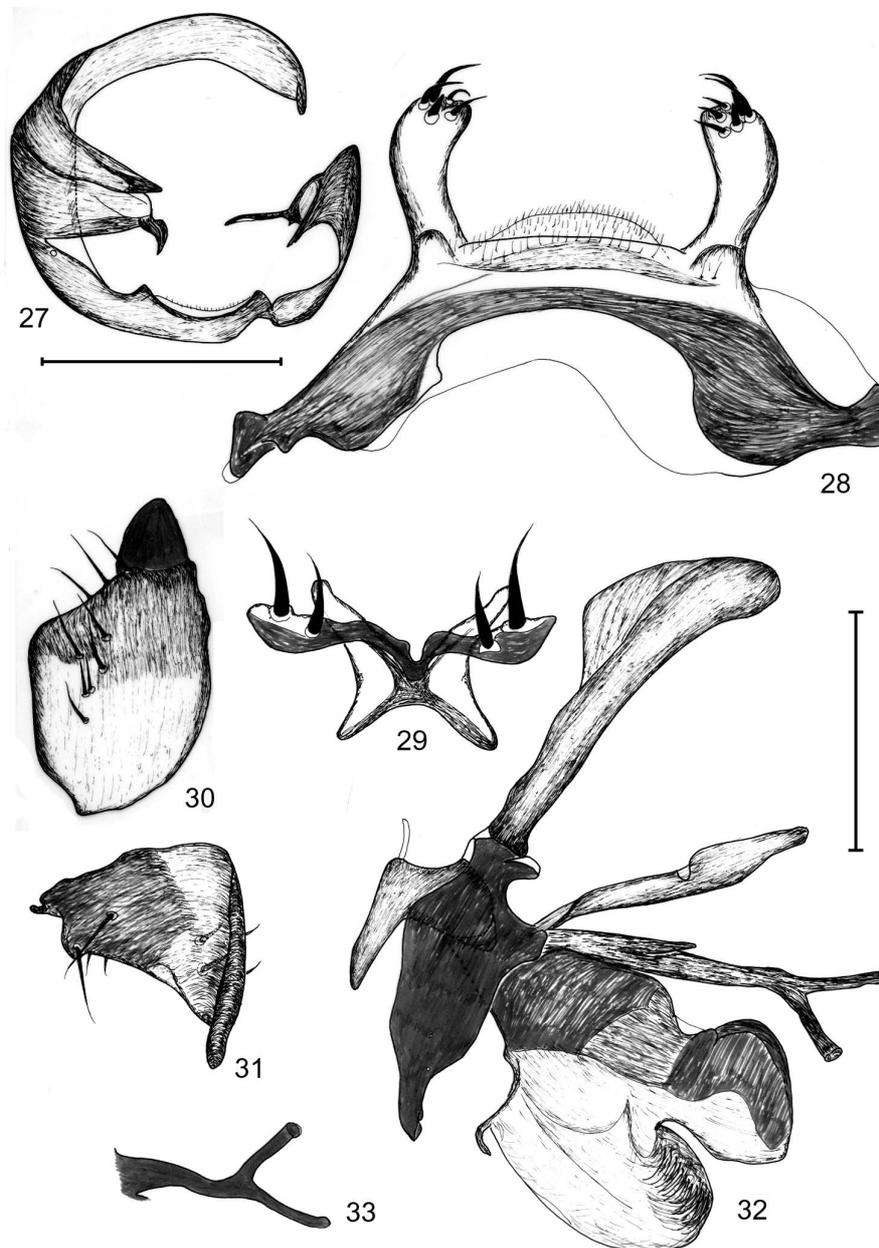
Paratypes (HNHM): 20 males 3 females: same as for holotype [abdomen and genitalia of two males in a plastic microvial each with glycerol].

Measurements in mm: body length 1.54 (holotype), 1.31–1.60 (paratype males), 1.59–1.87 (paratype females), wing length 1.41 (holotype), 1.15–1.48 (paratype males), 1.48–1.67 (paratype females), wing width 0.54 (holotype), 0.46–0.63 (paratype males), 0.57–0.68 (paratype females).

Head finely microtrichose, subshiny; silvery spots around bases of macrochaetae. Anterior 1/3–2/5 of frons reddish brown; ocellar triangle with the rest of frons dark brown. Gena pale yellow in male and reddish brown in female, face pale yellow in male and brown to dark brown in female; gena with dark minute setae directed downwards, they are more stronger in male; anterior *ifr* weak; middle and hind pairs medium-long. Posterior *ors* 1.75 to 2.0 times longer than anterior *ors*; eye oval, antenna dark brown, arista long, somewhat less than 4 times as long as antenna, shortly ciliate.

Thorax: Most parts of mesonotum silvery microtomentose, i.e. silvery spots around setal bases united (confluent) in 4 broad stripes, which leave velvety black only 3 longitudinal stripes plus a pre-scutellar area. 6 rows of acrostichal microsetae in front of suture, 3 pairs of rather strong *dc*. Pleura lighter grey or yellowish grey, strongly microtrichose; pale yellowish line on notopleura; 2 katepisternals, posterior one very long 0.33 mm, anterior pair weak, only 0.10–0.11 mm; scutellum velvety black, somewhat wider than long; 2 *sc* long, apical one 1.8–1.85 and lateral one 1.1–1.15 times as long as scutellum.

Wing: Yellowish, veins yellowish to ochreous; costal vein somewhat darker, not extended beyond apex of R_{4+5} , sub-basally with a very long (0.14–0.15 mm) seta, first sector with much longer setae than those of second and third sectors; R_{4+5} distinctly bent up to C; C-index ($Cs_2 : Cs_3$) = 1.21–1.30; R-M – dM-Cu : dM-Cu = about 2.5; lower corner of the discal cell angulate with a short



Figs 27–33. *Chaetopodella* (Ch.) *aethiopica* sp. n., paratype male, genitalia. 27 = pregenital sclerites, subventral-subcaudal view, 28 = 5th sternite, ventral view, 29 = subanal plate, caudal view; 30–31 = surstylus: 30 = in the broadest (sublateral) view, 31 = in ventral view; 32 = phallic complex (inner genitalia), lateral view, 33 = apical part of the dorsal process of distiphallus, broadest view. Scales: 0.2 mm for Fig. 27, 0.1 mm for Figs 28–33

vein appendage, or, in some specimens rounded without vein appendage (see below). Alula large, broad (up to 0.145 mm) and rounded. Halter white to light yellowish.

Legs: Yellowish brown to dark brown (generally darker in female). Mid trochanteral seta 0.17–0.19 mm long. Male fore coxa on anterior surface with 5 (6) medium-long setae (and without dense long hairs). Male fore tibia simple, fore tarsus not darkened and not flattened, tarsomeres without long dense lateral setae. Fore femur simple; male mid femur without a ventral row of setae basally. Mid tibia with 3 dorsal setae on basal 1/4, 1/3 and 3/4, 1 rather strong anterodorsal seta on 2/3, 2–3 weak posterodorsal setae on 1/3 – 1/2, rather strong posterodorsal seta on 2/3, 1 strong apico-ventral seta. A ventral seta in female at distal 17/40 of tibia (this ventral seta developed also in some males). Mid metatarsal seta very strong, 0.10 mm on a paratype. Second hind tarsomeres swollen, 0.24 mm long and 0.077 mm thick.

Abdomen: Preabdominal sternites 2–4 quadratic. Tergite 5 very small, less than 0.15 mm broad and less than 0.03 mm long. Sternite 5 (Fig. 28) comparatively long, caudal pair of processes medium-long slightly medially curved and bare, symmetrical with 2 pairs of lateral thicker setae, 1 pair of blunt setae and 2 pairs of smaller medial setae. Medial platelet pilose.

Synergosternite 6–8 (Fig. 27) comparatively short. S8 part of the complex short (as for the body axis), right part with intricate sclerotisation as given on the figure. Male cerci membranous, microsetose only. Subanal plate (Fig. 29) with one pair of a medial medium-long and one pair of longer lateral thorn-like setae. Surstylus (Figs 30–31) comparatively simple, lateral process with some medium-long setae on the outer surface; basal lobe large. Distiphallus short and thick. Epiphallus hook-like. Postgonite (Fig. 32) with much narrowed though not sharp apex. Phallapodeme robust. Apical part of the paired dorsal process of distiphallus with long rather thin fork apically (Fig. 33).

Also female tergites black. Lateral caudal setae on female abdominal tergites rather long, e.g. 0.22–0.23 mm on tergite 6. Membrane together with sternites 4–7 yellow. Cerci short with a pair of 0.10–0.12 mm long wavy bent hair-like setae.

Etymology. The specific epithet refers to the Latin name of its type locality 'Aethiopia'.

***Chaetopodella nigeriae* sp. n.**

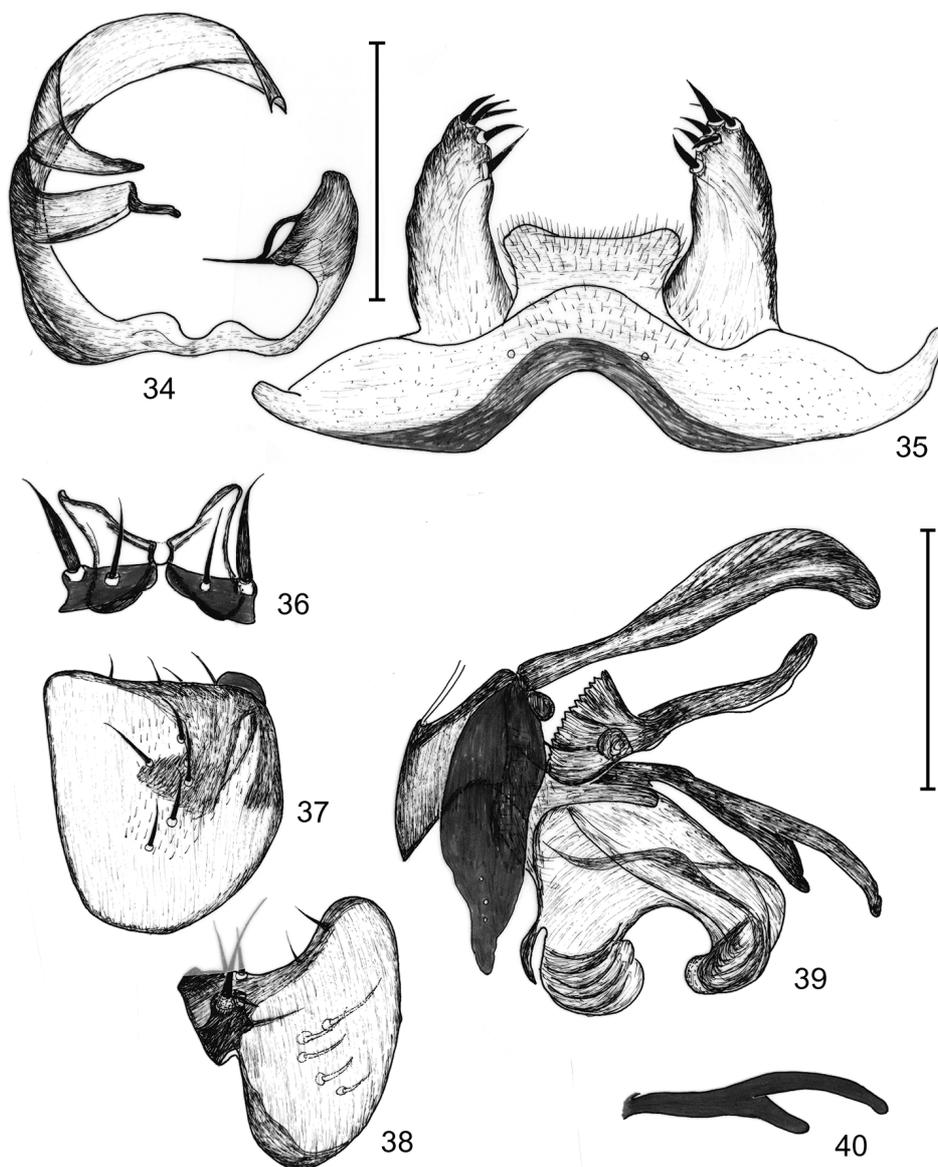
(Figs 34–40)

Holotype male (HNHM): Nigeria, Yanguikari Reserve, Wikki – Aug. 14, 1978, leg. A. DEMETER, No. 18 [hippo dung from the previous night].

Paratypes (HNHM): Nigeria, Yanguikari Reserve, Wikki: 7 males 4 females: same as for holotype; 1 male 2 females: *ibid.*, Aug. 11, No. 5 [2 to 3 days old buffalo dung] [abdomen and genitalia in a plastic microvial with glycerol]; 1 male: *ibid.*, Aug. 12, No. 12 [3 to 4 days old buffalo dung].

Measurements in mm: body length 1.32 (holotype), 1.26 – 1.48 (paratype males), 1.27–1.59 (paratypes females), wing length 1.21 (holotype), 1.18–1.40 (paratype males), 1.21–1.48 (paratype females), wing width 0.44 (holotype), 0.43–0.48 (paratype males), 0.47–0.55 (paratype females).

Head: Mostly blackish brown, heavily microtrichose. Frons entirely dark or reddish only on a narrow anterior part. There are silvery spots around bases of macrochaetae. Gena and face brown, in some specimens yellowish brown. Three medium-long interfrontal pairs present, upper setae slightly stronger. Anterior *ors* thin, 0.065–0.07 mm, about 1/2 length of posterior *ors* (0.014–0.015 mm). Eye large and rounded, its longest diameter (0.285 mm) about 3.5 times as long as genal width below eye



Figs 34–40. *Chaetopodella (Ch.) nigeriae* sp. n., paratype male, genitalia. 34 = pregenital sclerites, subventral-subcaudal view, 35 = 5th sternite, ventral view, 36 = subanal plate, caudal view; 37–38 = surstylus: 36 = in the broadest (sublateral) view, 38 = in ventral view; 39 = phallic complex (inner genitalia), lateral view, 40 = apical part of the dorsal process of distiphallus, broadest view. Scales: 0.2 mm for Fig. 34, 0.1 mm for Figs 35–40

(0.077 mm). Antenna dark brown, incl. scape, arista long, almost 4 times as long as antenna (0.59 vs. 0.15 mm, shortly ciliate).

Thorax: Mesonotal colour dominated by velvety black, i.e. silvery microtomentum only around setal bases and this silvery colour confluent only in 4 short stripes, which terminate at the level of posterior notopleural seta. Six rows of acrostichal microsetae in front of suture; 3 *dc*; 2 *kepst*, posterior one very strong (0.16–0.17 mm). Scutellum velvety black, somewhat wider than long (0.33 mm vs. 0.285 mm on holotype); 2 *sc* long, apical one (0.505 mm on holotype) nearly 2 times as long as lateral one (0.26 mm) and slightly shorter than scutellum.

Wing: Milky whitish, veins whitish except for light brown C; C not extended beyond apex of R_{4+5} . First costal section setae 0.09 mm long, i.e. distinctly stronger setae than those of second and third sectors and longer than cell diameter. Apical part of R_{4+5} rather strongly bent up to C. C-index = 0.40/0.225 mm 1.77 (holotype) 1.69–1.78 (paratypes); R-M – dM-Cu: dM-Cu = 3.4 (holotype), 3.3–3.5 (paratypes); lower corner of the discal cell angulate with a short vein appendage, or, in some specimens rounded without vein appendage; alula broad and rounded; halter yellowish white.

Legs brown; male fore tibia normal but tarsus slightly thickened. Male fore coxa on anterior surface with dense long (up to 0.18 mm) light curly hairs. Posterior apex of fore coxa with 2 (3) similar but thicker and even longer (0.20 mm) hair-like setae. Female fore coxa more medially than anteriorly with similar light but shorter dense hairs. Fore femur with 2–3 dorsal setae. Mid femur without a ventral row of setae on basal 1/5 in male.

Abdomen: Male tergite 5 short, not divided sagittally, sclerotisation not weaker than laterally. Sternite 5 (Fig. 35) with robust paired caudal processes not far from each other, medially and apically with 3+2+1 setae. Medial platelet angulate and hairy (pilose). Syntergosternite 6–8 (Fig. 34) short dorsally (as regards body axis), right lateral (T7) part complex. Ventralmost part of the complex comparatively weakly sclerotized. Ventral plate of subepandrial sclerite (Fig. 36) with 2 pairs of long thorn-like seta, the lateral one much thicker than the medial pair.

Surstylus (Figs 37–38) with large lateral process, which bears some medium-long setae; basal process with 1 long and 2 short setae. Distiphallus robust, comparatively short, epiphallus triangular in profile. Postgonite (Fig. 39) less narrowed in its apical part than that of *Ch. aethiopica*. Apical part of the paired dorsal process of distiphallus with a longer medial and a shorter lateral processes (Fig. 40).

Female abdominal tergites with long setae on caudal lateral edges, longest on tergite 6, 0.15 mm; cerci very short, only 0.08 mm long, 0.035 mm broad, longest cercal setae 0.08 mm long.

Etymology. The specific epithet (noun) refers to its type locality, Nigeria.

***Chaetopodella demeteri* sp. n.**

(Figs 41–46)

Holotype male (HNHM): Nigeria, Yanguikari Reserve, Wikki – Aug. 14, 1978, leg. A. DEMETER, No. 18 [hippo dung from the previous night].

Paratypes: Nigeria, Yanguikari Reserve, Wikki: 1 male: same data. 1 male, 1 female: *ibid.*, Aug. 14, No. 16 [fresh buffalo dung]; 1 female: *ibid.*, No. 20 [fresh buffalo dung]; 2 males 1 female: *ibid.*, Aug. 15, No. 22 [buffalo dung from the previous night]. One male of No. 22 was originally severely damaged by the pin; now wings are preserved between two small pieces of cover glass, abdomen and genitalia (dissected) in a plastic microvial with glycerol, and the rest of the body is also in another microvial with glycerol.

Measurements in mm: body length 1.54 (holotype), 1.32–1.38 (paratype males), 1.81–1.87 (paratypes females), wing length 1.37 (holotype), 1.15–1.25 (paratype males), 1.45–1.59 (paratype females), wing width 0.47 (holotype), 0.44–0.46 (paratype males), 0.54–0.61 (paratype females).

Head: Silvery spots or stripes around bases of macrochaetae. Frons dark brown, at most anterior 1/5 reddish. Face dirty yellow, gena greyish yellow; 3 *ifr*; upper setae slightly longer; anterior *ors* thin 0.09 mm, posterior *ors* thick 0.15–0.155 mm long. Eye short oval, its longest diameter (0.27 mm) more than 3.0 times as long as gena below eye (0.08 mm). Antenna dark brown. Arista long, 4.0–4.4 times as long as antenna, shortly ciliate.

Thorax: Mesonotal colour dominated by velvety black, i.e. silvery microtomentum only around setal bases and this silvery colour confluent only in 4 short stripes, which terminate at the level of posterior notopleural seta. Six rows of *ac* microsetae in front of suture, 3 *dc* shortening anteriorad. Two *kepst*, posterior one very long: 0.285 mm on holotype, 0.26 mm on a male paratype. Scutellum velvety black, wider than long, 0.285 mm broad and 0.24 mm long; 2 pairs of scutellar setae rather long, apical one 0.45 mm, lateral one 0.25 mm, scutellum (paratype male).

Wing: Milky, veins white; C not extended beyond apex of R_{4+5} , first section with much longer setae than those of second and third sections; R_{4+5} distinctly bent up to C; C-index = $0.40/0.25$ mm = 1.6 (1.55 on another male), R-M – dM-Cu : dM-Cu = 3.27; lower corner of the discal cell angulate with a short vein appendage, or, in some specimens rounded without vein appendage; alula broad and rounded; halter with reddish yellow knob and yellow stem.

Legs: Yellowish brown, fore coxa ochreous; male tarsi darker brown. Fore femur with 2 dorsal setae on apical half. Male fore tibia not thickened, fore tarsus slightly thickened and tarsomeres 2–5 even flattened. Fore coxa with 5–6 distinct setae and without long light (whitish) hairs. Mid trochanter with a thick 0.14 mm long seta laterally. Mid femur with a ventral row of 3 setae on basal 1/5 in male.

Abdomen: Male sternite 5 rather similar to that of *Ch. aethiopica*. However, caudal process (Fig. 41) short curved with shorter thorns. Medial platelet with short pilosity. Ventral plate of subepandrial sclerite (Fig. 42) with 2 pairs of long laterally curved thorn-like seta, the lateral one not thicker than the medial pair.

Surstylus (Figs 43–44) laterally on outer surface with several setae incl. on inner edge. Epiphallus (Fig. 45) smallest in the species group, subtriangular in profile, postgonite (Fig. 45) strongly narrowed subapically, apex almost sharp. Phallapodeme somewhat smaller than in the related species. Apical part of the paired dorsal process of distiphallus with short and thick fork (Figs 45–46), much shorter than those of *Ch. nigeriae* (Figs 39–40).

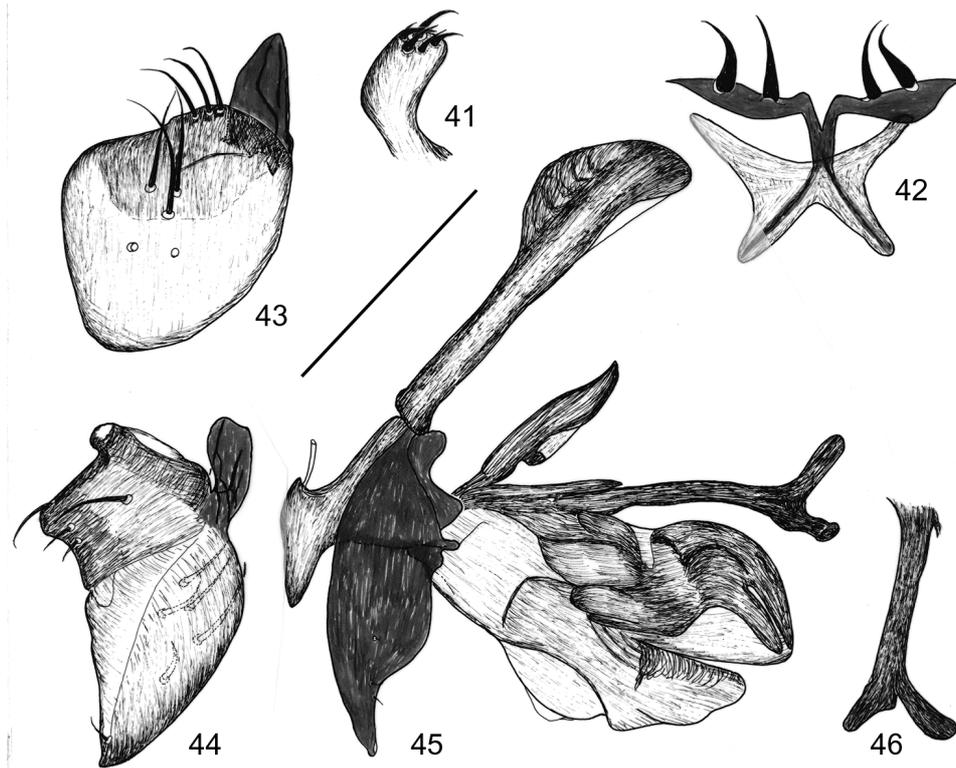
Female abdominal terga velvety black, sternites 3–5 (6) pale (yellowish), lateral seta on tergite 6 0.22 mm long. Cerci brown, ca. 0.10 mm long, longest cercal setae 0.11–0.12 mm.

Etymology. The species was named to the honour of Dr. ANDRÁS DEMETER (formerly the curator of the collection of mammals in the HNHM), who collected the type series of the three new species above.

Specimens with rounded discal cell. There are specimens in all the three *Chaetopodella* s.str. species described here with rounded discal cell. I made some figures on such a male of *Ch. aethiopica* (Figs 47–51) in order to demonstrate that these are not different species. The differences one can detect if compared to Figs 27–33 are individual variations, or, slight differences caused by the slightly different positioning of the given genital parts.

KEY TO THE AFROTROPICAL SPECIES
OF *CHAETOPODELLA* DUDA

- 1 (4) Mid trochanter with a lateral seta shorter than trochanter. Costal setae between veins H and R_1 short, much shorter than width of costal cell. Interfrontals all short. Anterior fronto-orbital seta minute. Abdomen (preabdomen) very long, male sternite 5 with a pair of three-lobed caudal processes. Male genitalia small, postgonites robust with several edges or tips. Discal cell narrow and very long. *Afrochaetopodella* subgen. n.
- 2 (3) A single short interfrontal pair of setae. Male sternite 5 with extremely long setae, its caudal process trilobed but short (Figs 20–21). Sternite 8 part

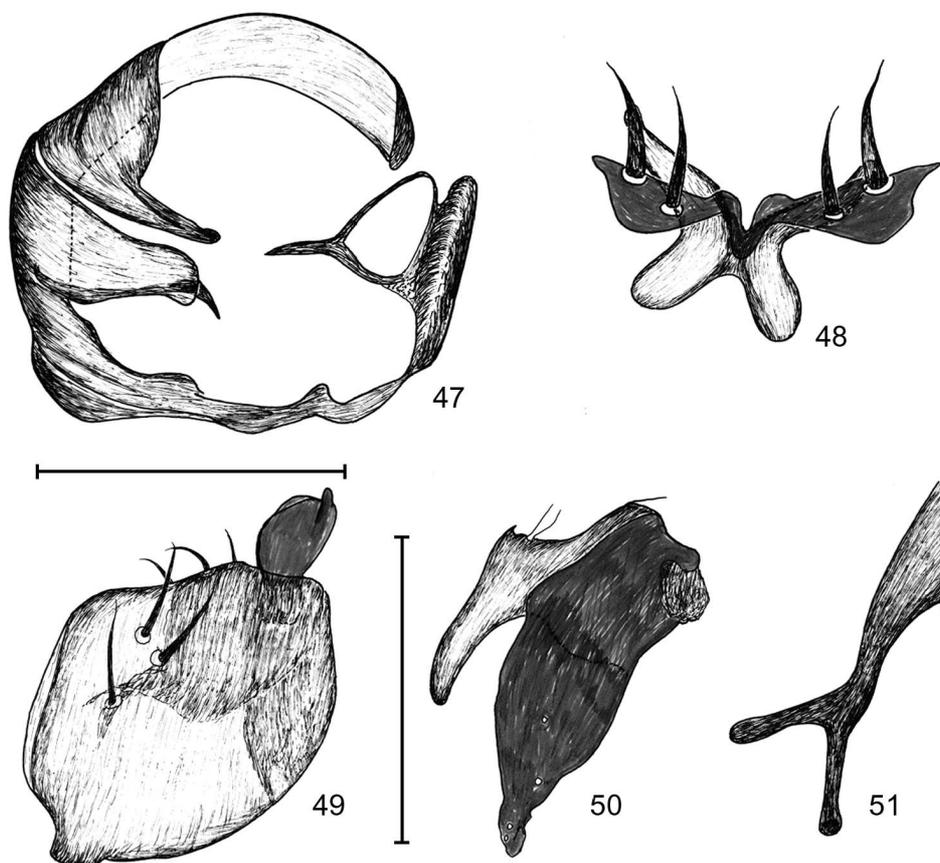


Figs 41–46. *Chaetopodella* (*Ch.*) *demeteri* sp. n., paratype male, genitalia. 41 = caudal process of sternite 5; 42 = subanal plate, caudal view; 43–44 = surstylus: 43 = in the broadest (sublateral) view, 44 = in ventral view; 45 = phallic complex (inner genitalia), lateral view, 46 = apical part of the dorsal process of distiphallus, broadest view. Scale: 0.1 mm for all

of the sytergosternite without a large process (Fig. 19). Male genitalia (Figs 22–26). Tanzania. **Ch. (A.) reducta** sp. n.

- 3 (2) 3 pairs of short interfrontals. Male sternite 5 without very long setae but with extremely long trilobed caudal processes (Figs 14–15). Sternite 8 part of the sytergosternite with a large oblique process (Fig. 13). Male genitalia (Figs 16–18). Kenya. **Ch. (A.) keniaca** sp. n.

- 1 (4) Mid trochanter with a lateral seta much longer than trochanter (exceptionally as long, usually twice longer). Costal setae between veins H and R₁ long, at least as long as width of costal cell (usually even longer). At least



Figs 47–51. *Chaetopodella (Ch.) aethiopica* sp. n., genitalia of a paratype male with rounded discal cell. 47 = pregenital sclerites, subventral-subcaudal view, 48 = subanal plate, caudal view; 49 = postgonite and epiphallus, lateral view, 50 = surstylus, broadest (sublateral) view, 51 = apical part of the dorsal process of distiphallus, broadest view. Scales: 0.2 mm for Fig. 47, 0.1 mm for Figs 48–51

one of the interfrontals long. Anterior fronto-orbital seta usually longer. Abdomen (preabdomen) normal, male sternite 5 with a pair of slightly mediocline digitiform processes. Male genitalia large, postgonites triangular in profile or narrowed apically. Discal cell various.

Chaetopodella s. str. subgen.

- 5 (6) Supra-alar area back to scutellum yellow. Mesonotum brown rather than black. Most of the thoracic setae pale yellowish. Zaire.
Ch. impermissa (RICHARDS)
- 6 (5) Supra-alar area concolorous with other parts of mesonotum. Mesonotum black (though with microtomentose areas), thoracic setae black.
- 7 (8) Mesonotum unicolorous, i.e. of the same colour (blackish dark grey) seen from any direction. Wing light yellowish. Anterior fronto-orbital seta 2/3 of the length of the posterior pair. Male genitalia (Figs 7–12). Ethiopia, Tanzania, ?Zaire.
Ch. denigrata (DUDA)
- 8 (7) Mesonotum velvety black with silvery microtomentose areas, colour depends on the direction of observation. Wings milky or light yellowish. Anterior fronto-orbital seta at most 3/5 of the length of the posterior pair.
- 9 (10) Male fore coxa on anterior surface with dense long light curly hairs, posterior apex of fore coxa with 2 (3) similar but thicker and even longer (0.20 mm) hair-like setae. Female fore coxa, more medially than anteriorly, with similar light but shorter dense hairs. Mesonotal colour dominated by velvety black, i.e. silvery microtomentum only around setal bases and this silvery colour confluent only in 4 short stripes, which terminate at the level of posterior notopleural seta. All frons dark or reddish only on a narrow anterior part (females). Male genitalia (Figs 34–40) with epiphallus triangular in profile. Nigeria. **Ch. nigeriae** sp. n.
- 10 (9) Fore coxa with 5–6 distinct setae and without long light (whitish) hairs.
- 11 (12) Mesonotal colour dominated by velvety black, i.e. silvery microtomentum only around setal bases and this silvery colour confluent only in 4 short stripes, which terminate at the level of posterior notopleural seta. All frons dark or reddish only on a narrow anterior part. Male mid femur with a ventral row of 3 setae on basal 1/5. Male genitalia (Figs 41–46) with epiphallus small and subtriangular in profile. Nigeria. **Ch. demeteri** sp. n.
- 12 (11) Most parts of mesonotum silvery microtomentose, i.e. silvery spots around setal bases united (confluent) in 4 broad stripes, which leave velvety black

only 3 longitudinal stripes plus a pre-scutellar area. Frons yellowish or reddish anteriorly. Male mid femur without stronger setae on basal 1/5 ventrally. Epiphallus hook-like.

- 13 (14) Pleura dark graphite, costal vein dark brown, cross-veins darkened. Caudal process of male sternite 5 with very long thorns (Fig. 2). Male genitalia (Figs 3–6). Republic of South Africa, ?Mozambique.

Ch. cursoni (RICHARDS)

- 14 (13) Pleura lighter grey or yellowish grey, costal vein yellow, cross-veins and membrane around them clear. Caudal process of male sternite 5 with shorter thorns, incl. a blunt one (Fig. 28). Male genitalia (Figs 29–33). Ethiopia.

Ch. aethiopica sp. n.

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