

ARTÍCULO:

A new genus and nine new larval species (Acari: Prostigmata: Erythraeidae, Eutrombidiidae) from Benin, Ghana and Togo

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Revista Ibérica de Aracnología

ISSN: 1576 - 9518.

Dep. Legal: Z-2656-2000.

Vol. 14, 31-XII-2006

Sección: Artículos y Notas.

Pp: 109 – 127.

Fecha publicación: 25 Octubre 2007

Edita:

Grupo Ibérico de Aracnología (GIA)

Grupo de trabajo en Aracnología
de la Sociedad Entomológica Aragone-
sa (SEA)

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ARTÍCULO:

A new genus and nine new larval species (Acari: Prostigmata: Erythraeidae, Eutrom- bidiidae) from Benin, Ghana and Togo

Ryszard Haitlinger

Abstract:

A new genus and nine new species are described: *Leptus (Leptus) pelebinus* sp. n. from Benin, *Leptus (Leptus) elminus* sp. n., *Leptus (Leptus) abrofaicus* sp. n., *Abrolophus basumtwiensis* sp. n., *Charletonia ghanensis* sp. n., all from Ghana, *Charletonia grandpopensis* sp. n. from Benin, *Charletonia beninensis* sp. n. from Benin and Ghana, *Lomeustium togoensis* gen. n., sp. n. from Togo, Benin and Ghana and *Eutrombidium pelebinum* sp. n. from Benin. *Charletonia braunsi* (Oudemans, 1910) is reported for the first time from Ghana and *Charletonia brunni* (Oudemans, 1910) is reported for the first time from Benin and Ghana.

Key words: Acari, Prostigmata, Erythraeidae, Eutrombidiidae, new genus, new species, Benin, Ghana, Togo.

Taxonomy: *Leptus (Leptus) pelebinus* sp. n., *Leptus (Leptus) elminus* sp. n., *Leptus (Leptus) abrofaicus* sp. n., *Abrolophus basumtwiensis* sp. n., *Charletonia ghanensis* sp. n., *C. grandpopensis* sp. n., *C. beninensis* sp. n., *Lomeustium togoensis* gen. n., sp. n., *Eutrombidium pelebinum* sp. n.

Un nuevo género y nueve nuevas especies larvales (Acari: Prostigmata: Erythraeidae, Eutrombidiidae) de Benin, Ghana y Togo

Resumen:

Se describen un nuevo género y nueve nuevas especies: *Leptus (Leptus) pelebinus* sp. n. de Benin, *Leptus (Leptus) elminus* sp. n., *Leptus (Leptus) abrofaicus* sp. n., *Abrolophus basumtwiensis* sp. n., *Charletonia ghanensis* sp. n., todas de Ghana, *Charletonia grandpopensis* sp. n. de Benin, *Charletonia beninensis* sp. n. de Benin y Ghana, *Lomeustium togoensis* gen. n., sp. n. de Togo, Benin y Ghana y *Eutrombidium pelebinum* sp. n. de Benin. *Charletonia braunsi* (Oudemans, 1910) se cita por primera vez de Ghana y *Charletonia brunni* (Oudemans, 1910) se cita por primera vez de Benin y Ghana.

Palabras clave: Acari, Prostigmata, Erythraeidae, Eutrombidiidae, nuevo género, nueva especie, Benin, Ghana, Togo.

Taxonomía: *Leptus (Leptus) pelebinus* sp. n., *Leptus (Leptus) elminus* sp. n., *Leptus (Leptus) abrofaicus* sp. n., *Abrolophus basumtwiensis* sp. n., *Charletonia ghanensis* sp. n., *C. grandpopensis* sp. n., *C. beninensis* sp. n., *Lomeustium togoensis* gen. n., sp. n., *Eutrombidium pelebinum* sp. n.

Introduction

In Benin, Ghana and Togo the mites belonging to the families Erythraeidae and Eutrombidiidae based on larvae are known very poorly. From Ghana only *Leptus (Leptus) bertoldi* Haitlinger, 1993 associated with undetermined Tenebrionidae (Coleoptera) was known (Haitlinger, 1993); from Benin and from Togo no species were known. In this paper nine new species and a new genus are described based on larval specimens: *Leptus (Leptus) pelebinus* sp. n., *Charletonia grandpopensis* sp. n., *Eutrombidium pelebinum* sp. n. all from Benin, *Leptus (Leptus) elminus* sp. n., from Benin, *Leptus (Leptus) el-*

minus sp. n., *Leptus (Leptus) abrofaicus* sp. n., *Abrolophus basumtwiensis* sp. n., *Charletonia ghanensis* sp. n. from Ghana, *Charletonia beninensis* sp. n. from Benin and Ghana and *Lomeustium togoensis* gen. n., sp. n. from Togo, Benin and Ghana. All descriptions are based on the larval instars. *Charletonia braunsi* (Oudemans, 1910) is new to the fauna of Ghana and *Charletonia brunni* (Oudemans, 1910) is new to the fauna of Benin and Ghana. The terra typica of *C. brunni* according to Oudemans was Wari, Benin, but the actual locality belongs to Nigeria.

Material and Methods

The larvae of mites were collected from plants and Orthoptera in Benin, Ghana and Togo. The specimens were preserved in ethanol and then mounted in Berlese's medium. From 17 March to 30 March 2006, 112 larvae were captured: 54 larvae from herbaceous plants and 58 larvae from undetermined Orthoptera.

The holotypes and paratypes of the new species are deposited at the Museum of Natural History, Wrocław University (MNHU), Poland. The terminology of the structures and setal notation for erythraeids and eutrombidiids follows Southcott (1993, 1999) and Haitlinger (2000a, 2001). All tarsi (Ta) were measured excluding pads. All measurements are given in micrometers (μm).

Systematics

FAMILY: Erythraeidae Robineau-Desvoidy, 1828

GENUS: *Leptus* Latreille, 1796

Leptus (Leptus) pelebinus sp. n.

Figs 1-11.

TYPES. Larva holotype (MNHU), Pélébina, ~150 km to south from Natitingou, Benin, 26.03.2006, from undetermined Orthoptera; leg. R. Haitlinger.

ETYMOLOGY. named referring the place where the holotype was collected

DIAGNOSIS. Two palpgenualae, 8 setae between coxae I-II, ~30 setae between coxae II-III, TaI 202, TiIII 320.

DESCRIPTION. - LARVA - holotype - Measurements in Table I. Dorsum with ~180 barbed setae. One eye on each side (Fig. 1). Dorsal scutum punctate with concave anterior border and sharply ending posterior part. Scutalae barbed, sensillae AM and S both nude; at S sockets cuticular lines present (Fig. 3).

Idiosoma ventrally with barbed setae: between coxae I a pair of setae 1a, between coxae I-II 8 setae, between coxae II 3 setae, between coxae II-III 27 setae. Beyond coxae III 56 setae. All coxalae are barbed (Fig. 2).

Gnathosoma with hypostomalae and galealae both nude. Palpfemur with one barbed seta, palpgenu with two barbed setae and palptibia with three setae (2B, 1N) (Fig. 4). Palptarsus with 6 nude setae (with eupathidium and solenidion) (Fig. 5).

Leg setal formula. Leg I: Ta 1 ω , 1 ζ , 21B; Ti 2 ϕ , 1 κ , 14B; Ge 1 σ , 1 κ , 8B; Tf 5B; Bf 3B; Tr 1B; Cx 1B (Figs 6, 7). Leg II: Ta 1 ω , 1 ζ , 18 (2N, 16B); Ti 2 ϕ , 14B; Ge 1 κ , 8B; Tf 5B; Bf 3B; Tr 1B; Cx 1B (Figs 8, 9). Leg III: Ta 19B; Ti 1 ϕ , 14B; Ge 8B; Tf 5B; Bf 3B; Tr 1B; Cx 1B (Figs 10, 11). Ip = 1018 + 862 + 1136 = 3016.

REMARKS: *L. (L.) pelebinus* sp. n. belongs to the species group of *Leptus* bearing two palpgenualae, more than 4 setae between coxae I-II and more than 4 setae between coxae II-III. This group includes only 3 species: *Leptus (Leptus) comosus* Southcott, 1991 from Australia, *Leptus (Leptus) olamukijacus* Haitlinger, 2001 from Kenya and *Leptus (Amaroptus) vuki* Haitlinger, 2000 from Peru (Southcott, 1991, Haitlinger, 2000b, 2001). It differs from *L. (L.) comosus* by longer AW (94 vs 75-82), L (130 vs 84-104), ISD (64 vs 46-55), TaI (202 vs 106-125) and TiIII (320 vs 156-186); from *L. (L.) olamukijacus* by shape of dorsal setae (normal setae vs enlarged setae), longer AW (94 vs 76), L (130 vs 84), TaI (202 vs 124) and TiIII (320 vs 192) and from *L. (A.) vuki* by four scutalae vs six scutalae, TaI (202 vs 104-108) and TiIII (320 vs 130-136).

Leptus (Leptus) elminus sp. n.

Figs 12-18.

TYPES. Larva holotype (MNHU), Elmina, Ghana, 17.03.2006, from herbaceous plants; leg. R. Haitlinger.

ETYMOLOGY. named referring the place where the holotype was collected

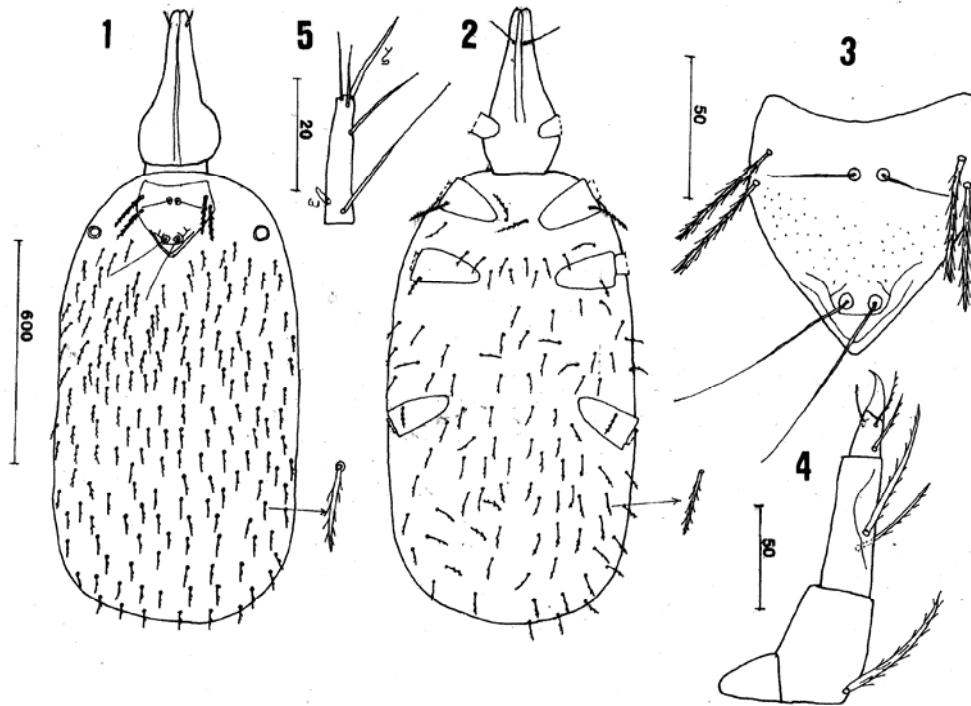
DIAGNOSIS. Two palpgenualae, four setae between coxae II-III, fD 54, AW 56, PW 70, GL 150, TaI 104, TiIII 160.

DESCRIPTION. - LARVA - holotype - Measurements in Table I. Dorsum with 55 barbed setae. One eye on both sides of idiosoma present (Fig. 12). Scutum with barbed scutalae, sensillae AM and S both with barbs on their 2/3 distal lengths. At sockets of sensillae S and anterior to them are present cuticular lines (Fig. 14).

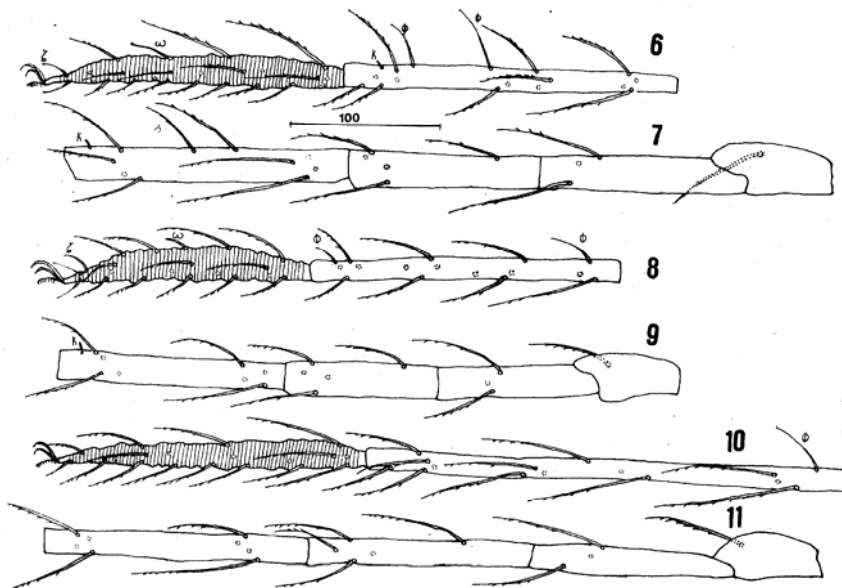
Idiosoma ventrally with barbed setae: a pair between coxae I and coxae II, four between coxae II-III (lateral setae shorter). Beyond coxae III 20 setae. All coxalae barbed (Fig. 13).

Gnathosoma with nude hypostomalae; galealae invisible. Palpfemur with one seta, palpgenu with two setae and palptibia with three setae, all setae barbed (Fig. 15). Palptarsus badly visible.

Leg setal formula. Leg I: Ta 1 ω , 1 ζ , 19B; Ti 2 ϕ , 1 κ , 14B; Ge 1 σ , 8B; Tf 5B; Bf 2B; Tr 1B; Cx 1B (Fig.



Figs 1-5. *Leptus (L.) pelebinus* sp. n.: 1. idiosoma and gnathosoma, dorsal view; 2. idiosoma and gnathosoma, ventral view; 3. scutum; 4. palp; 5. palptarsus.



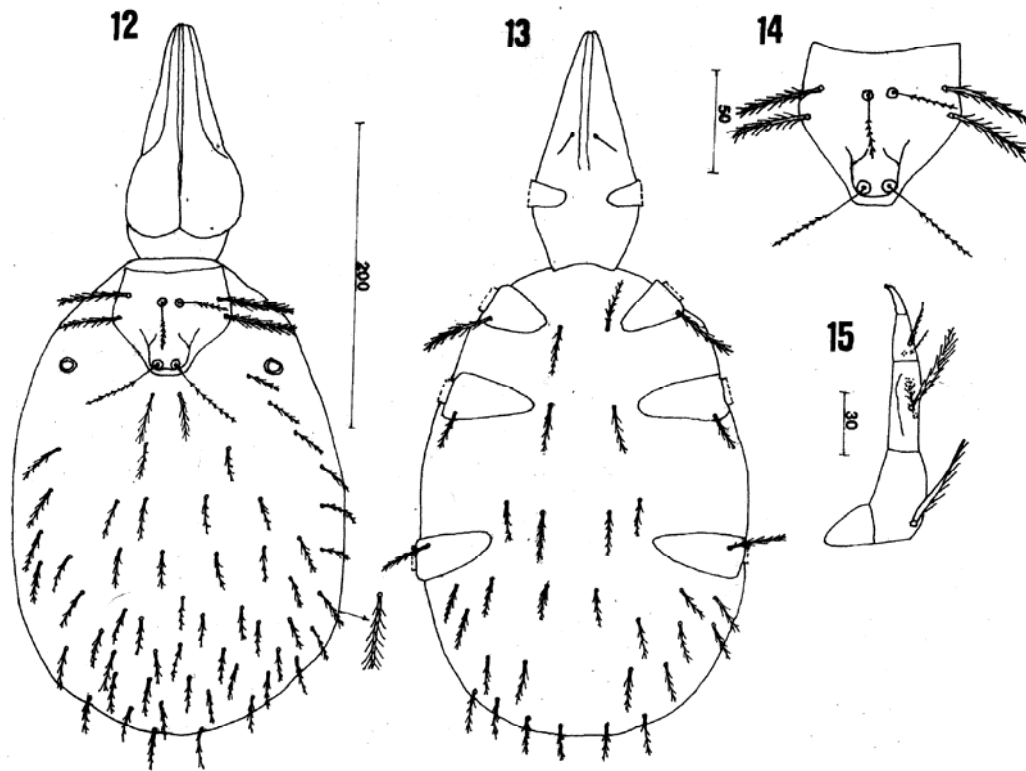
Figs 6-11. *Leptus (L.) pelebinus* sp. n.: 6. leg I, tarsus - tibia; 7. leg I, genu - trochanter; 8. leg II, tarsus - tibia; 9. leg II, genu - trochanter; 10. leg III, tarsus - tibia; 11. leg III, genu - trochanter.

16). Leg II: Ta 1 ω , 1 ζ , 19B; Ti 2 ϕ , 14B; Ge 1 κ , 8B; Tf 5B; Bf 2B; Tr 1B; Cx 1B (Fig. 17).

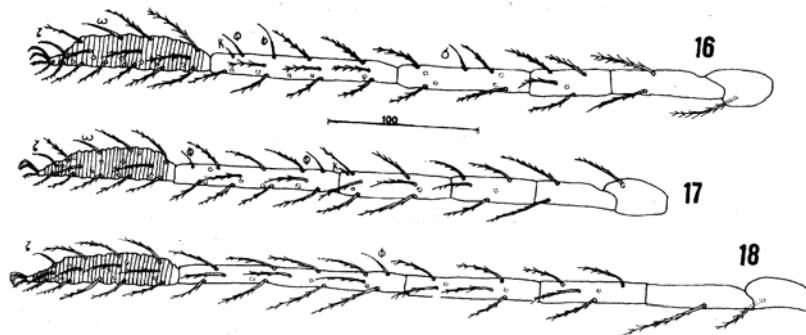
Leg III: Ta 1 ζ , 19B; Ti 1 ϕ , 14B; Ge 8B; Tf 5B; Bf 1B; Tr 1B; Cx 1B (Fig. 18). Ip = 526 + 492 + 594 = 1612.

REMARKS: *L. (L.) elminus* sp. n. belongs to the species group with two palpgenualae and four setae between

coxae II-III. This group includes: *Leptus (Leptus) lomani* (Oudemans, 1912) from Chile, *Leptus (Leptus) hringuri* Haitlinger, 2000 from Peru, *Leptus (Leptus) iguacuicus* Haitlinger, 2004 from Brazil, *Leptus (Leptus) anomalus* Southcott, 1946, *Leptus (Leptus) charon* Southcott, 1991, *Leptus (Leptus) faini* Southcott, 1993,



Figs 12-15. *Leptus (L.) elminus* sp. n.: 12. idiosoma and gnathosoma, dorsal view; 13. idiosoma and gnathosoma, ventral view; 14. scutum; 15. palp.



Figs 16-18. *Leptus (L.) elminus* sp. n.: 16. leg I, tarsus - tochanter; 17. leg II, tarsus - trochanter; 18. leg III, tarsus - trochanter.

Leptus (Leptus) utheri Southcott, 1993, *Leptus (Leptus) halli* Southcott, 1993, *Leptus (Leptus) truncatus* Southcott, 1993, *Leptus (Leptus) fortei* Southcott, 1991, *Leptus (Leptus) waldockae* Fain, 1991 all from Australia, *Leptus (Leptus) fathipeuri* Haitlinger & Saboori, 1996 from Iran, *Leptus (Leptus) benzaliensis* Fain & Elsen, 1972 from Democratic Republic of Congo (Zaire), *Leptus (Leptus) aggoratus* Haitlinger, 1990 from Zambia and *Leptus (Leptus) dinekaicus* Haitlinger, 2006 from Ethiopia (Oudemans, 1912, Fain & Elsen, 1972, Fain, 1991, Haitlinger, 1990, 2000b, 2001, 2006b, Southcott, 1991, 1993, Haitlinger & Saboori, 1996). *L. (L.) elminus* sp. n. differs from *L. (L.) lomani* in AL and PL both

placed on scutum, in *L. (L.) lomani* PL are beyond scutum; from *L. (L.) hringuri* by the shorter L (82 vs 124-126), AL (45-46 vs 84-86), ISD (50 vs 80), GL (150 vs 260-264) and TiIII (160 vs 236); from *L. (L.) iguacuicus* by fD (54 vs 82), the shorter W (74 vs 90), AW (56 vs 68), S (54 vs 66-78), TiI (124 vs 136) and GeI (90 vs 100); from *L. (L.) anomalus* by fD (54 vs 88), the shorter AW (56 vs 65-73), S (54 vs 66-78), longer ISD (50 vs 39-46), 1a (36 vs 21-29) and 2a (32 vs 16-24); from *L. (L.) charon*, *L. (L.) faini*, *L. (L.) truncatus*, *L. (L.) fortei*, *L. (L.) benzaliensis* and *L. (L.) aggoratus* by shorter AW (56 vs 86-98, 91-100, 93, 95-97, 123-130, 100, respectively), W (74 vs 108-109, 120-127, 119, 122-125, 119,

134, respectively); from *L. (L.) utheri* by shape of dorsal setae, shorter AW (56 vs 82), TaI (104 vs 120); from *L. (L.) fathipeuri* by the shorter TaI (104 vs 112), TiI (124 vs 146), TiIII (160 vs 180); from *L. (L.) waldockae* by longer L (82 vs 57-63) and shorter AW (56 vs 70-75); from *L. (L.) halli* by shape of dorsal setae, shorter AW (56 vs 71-87), W (74 vs 91-100) and longer DS (36-42 vs 23-31) and from *L. (L.) dinekaicus* by the longer TaI (104 vs 84-94), GeI (90 vs 72-80), TaIII (104 vs 84-92) and TiIII (160 vs 110-122).

***Leptus (Leptus) abrafoicus* sp. n.**

Figs 19-26.

TYPES. Larva holotype (MNHWU), Abrafo, Ghana, 17.03.2006, from herbaceous plants; leg. R. Haitlinger.

ETYMOLOGY. named referring the place where the holotype was collected.

DIAGNOSIS. one palpgenuala, four intercoxalae, AL 44, PL 54, GL 184, TaI 124, TiIII 152.

DESCRIPTION. - LARVA - holotype - Measurements in Table I. Dorsal surface of idiosoma with 47 barbed setae. One eye on each side (Fig. 19). Scutum with distinctly barbed scutalae, S with barbs at the top (AM sensillae broken). Beyond sockets of anterior sensillae dashed lines (as in Fig. 21).

Idiosoma ventrally with setal pair 1a, between coxae II setal pair 2a and between coxae II-III two setal pairs, all barbed. Beyond coxae III 10 barbed setae. All coxalae barbed (Fig. 20).

Gnathosoma with nude hypostomalae; galealae invisible. Palpfemur and palpgenu both with one barbed seta. Palptibia with three setae (B,N,N) (Fig. 22). Palptarsus with 6 nude setae (with eupathidium and solenidion) (Fig. 23).

Leg setal formula. Leg I: Ta 1 ω , 1 ζ , 21B; Ti 2 ϕ , 1 κ , 12B; Ge 1 σ , 1 κ , 8B; Tf 5B; Bf 2B. Tr 1B; Cx 1B (Fig. 24). Leg II: Ta 1 ω , 1 ζ , 17B; Ti 1 ϕ , 12B; Ge 8B; Tf 5B; Bf 2B; Tr 1B; Cx 1B (Fig. 25). Leg III: Ta 15B; Ti 1 ϕ , 12B; Ge 8B; Tf 5B; Bf 1B; Tr 1B (Fig. 26). Ip = 572 + 510 + 610 = 1692.

REMARKS: *L. (L.) abrafoicus* sp. n. belongs to the species group with one palpgenuala, four setae between coxae II- III and TiIII n 146-175 μ m long. This group includes: *Leptus (Leptus) clavatus* Southcott, 1999, *Leptus (Leptus) bathypogonus* Womersley, 1934 both from Australia, *Leptus (Leptus) laplandicus* Southcott, 1992, *Leptus (Leptus) millipedioides* Southcott, 1992, *Leptus (Leptus) galerucaae* Feider, 1967, *Leptus (Leptus) gyas* Fain & D'Amico, 1997, all from Europe, *Leptus (Leptus) gifuensis* Kawashima, 1958, *Leptus (Leptus) hozumii* Shiba, 1976, *Leptus (Leptus) brachypodos* Zheng, 1996, all from Asia, *Leptus (Leptus) treati* Welbourn, 1991, *Leptus (Leptus) kalallus* Southcott, 1992, *Leptus (Leptus) ruginus* Southcott, 1992, all from North

America, *Leptus (Leptus) ariel* Southcott, 1989 from Central and South America, *Leptus (Leptus) fozicus* Haitlinger, 2004 from South America and *Leptus (Leptus) masaimaraicus* Haitlinger, 2001 from Africa (Womersley, 1934, Kawashima, 1958, Feider, 1967, Shiba, 1976, Welbourn & Jennings, 1991, Southcott, 1989, 1992, 1999, Zheng, 1996, Fain & D'Amico, 1997, Haitlinger, 2001, 2004). *L. (L.) abrafoicus* sp. n. differs from *L. (L.) millipedioides*, *L. (L.) kalallus* and *L. (L.) gifuensis* by the number of dorsal setae (54 vs 162, 79, 71, respectively); from *L. (L.) treati* in fD (48 vs 66-80), fV (12 vs 36-42), scutum without concave anterior border and concave posterior border, the shorter AL (44 vs 56-67) and PL (54 vs 65-78); from *L. (L.) ariel* in lack κ on TiIII and GeII, the shorter 2a (22 vs 38) and longer GL (184 vs 165); from *L. (L.) brachypodos* in fV (12 vs 22), the shorter AW (78 vs 89), PW (90 vs 101), PL (54 vs 66), TaI (124 vs 140) and DS (42-50 vs 66-74), 2a (24 vs 42) and leg I (572 vs 631); from *L. (L.) galerucaae* by the shorter AW (78 vs 92-102), W (100 vs 119-141), AL (44 vs 61-64) and longer DS (42-50 vs 27-32); from *L. (L.) laplandicus* by fD (48 vs 65), fV (12 vs 26), the shorter AL (44 vs 55-60), PL (54 vs 68-73) and S (54 vs 71-73); from *L. (L.) ruginus* by lack Fa, AM level with AL bases vs AM between bases of AL and PL and the shorter PL (54 vs 61-64); from *L. (L.) gyas* by the shorter AW (78 vs 108), PW (90 vs 117), L (88 vs 108), AL (44 vs 55), PL (54 vs 66), TaI (124 vs 145) and TiIII (152 vs 174); from *L. (L.) fozicus* in the shorter AL (44 vs 50-56), S (54 vs 62-68), 1a (24 vs 32-40), 2a (24 vs 32-38), TiI (122 vs 136-144) and TiIII (152 vs 166-174) and from *L. (L.) masaimaraicus* by the shorter PW (90 vs 110-112), ISD (58 vs 64-66), AL (44 vs 50-52) and GL (184 vs 210-212).

GENUS: *Abrolophus* Berlese, 1891

***Abrolophus basumtwiensis* sp. n.**

Figs 27-34.

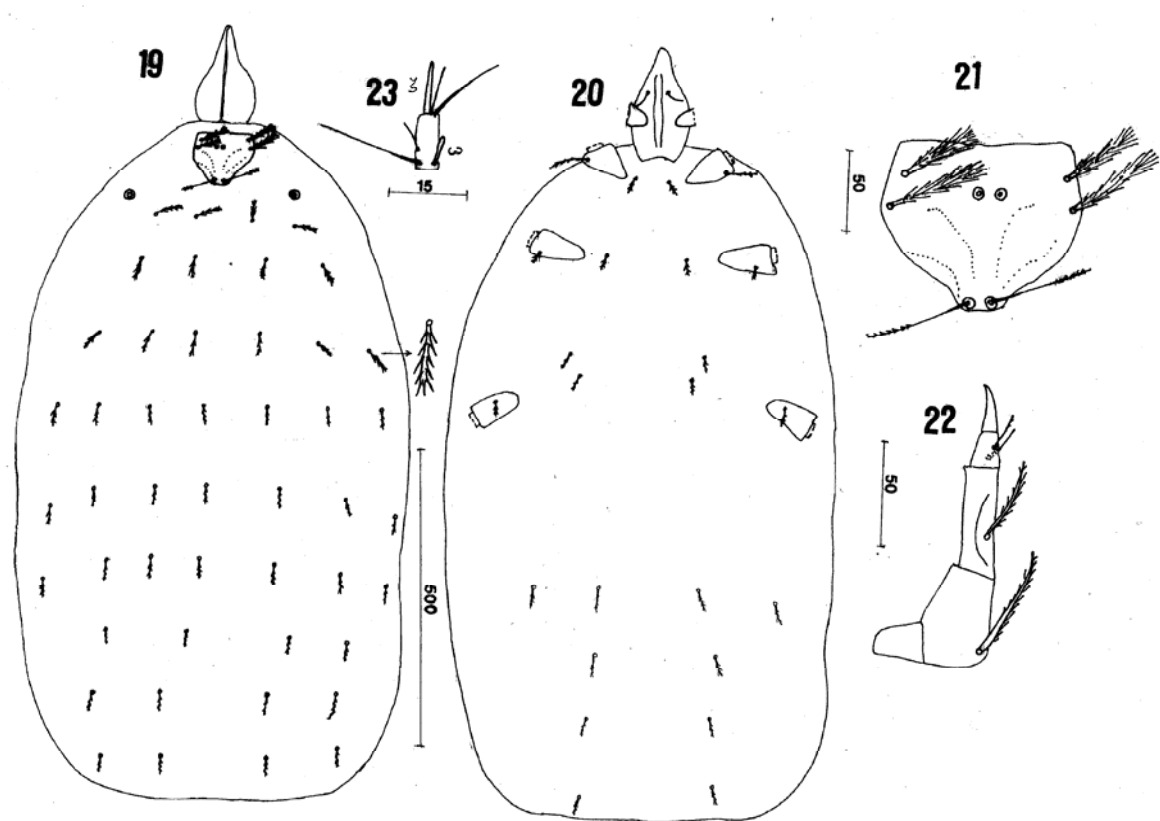
TYPES. Larva holotype (MNHWU), at lake Basumtwi, Kumasi, Ghana, 18.03.2006; from herbaceous plants; leg. R. Haitlinger; larva paratypes (MNHWU) : 3 l., the same data as the holotype.

ETYMOLOGY. named referring the place where the holotype was collected.

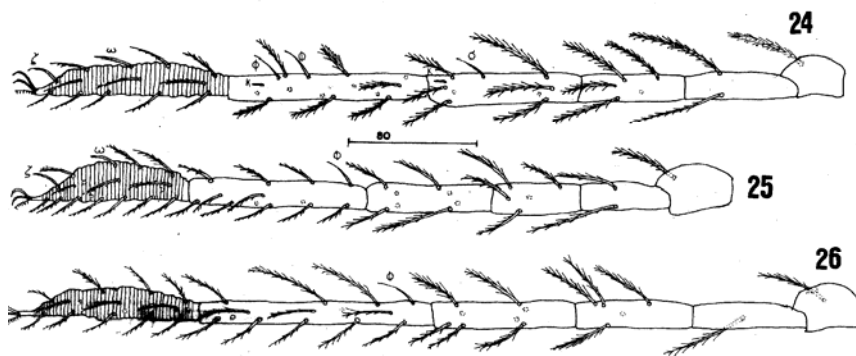
DIAGNOSIS. fD 40, fnGe 10-9-9, fnTi 12-12-12, AW 32-34, PW 36-38, GL 80-88, TiIII 50-58.

DESCRIPTION. - LARVA - holotype - Measurements in Table II. Dorsum with 38 nude setae. One eye on each side (Fig. 27). Dorsal scutum with 2 pairs of nude scutalae, AL>PL. Two pairs of sensillary setae, both nude. At bases of AM and bases of S and beyond AM cuticular lines present (Fig. 29).

Idiosoma ventrally with setal pair 1a, between coxae I-II 2 pairs of setae, between coxae II-III 17 setae;



Figs 19-23. *Leptus (L.) abrafoicus* sp. n.: 19. idiosoma and gnathosoma, dorsal view; 20. idiosoma and gnathosoma, ventral view; 21. scutum; 22. palp; 23. palptarsus.



Figs 24-26. *Leptus (L.) abrafoicus* sp. n.: 24. leg I, tarsus - trochanter; 25. leg II, tarsus - trochanter; 26. leg III, tarsus - trochanter.

24 setae posterior to coxae III. All setae nude (Fig. 28).

Gnathosoma with hypostomalae and anterior setae or, both nude, scl¹>or (Fig. 28). Palpfemur with 2 nude setae, palpgenu with 3 nude setae, palptibia with 2 nude setae and 1 cone-like seta (i.e. accessory claw) (Fig. 30). Palptarsus with comb-like seta, 1 long seta and 4 short nude setae (with solenidion)(Fig. 31).

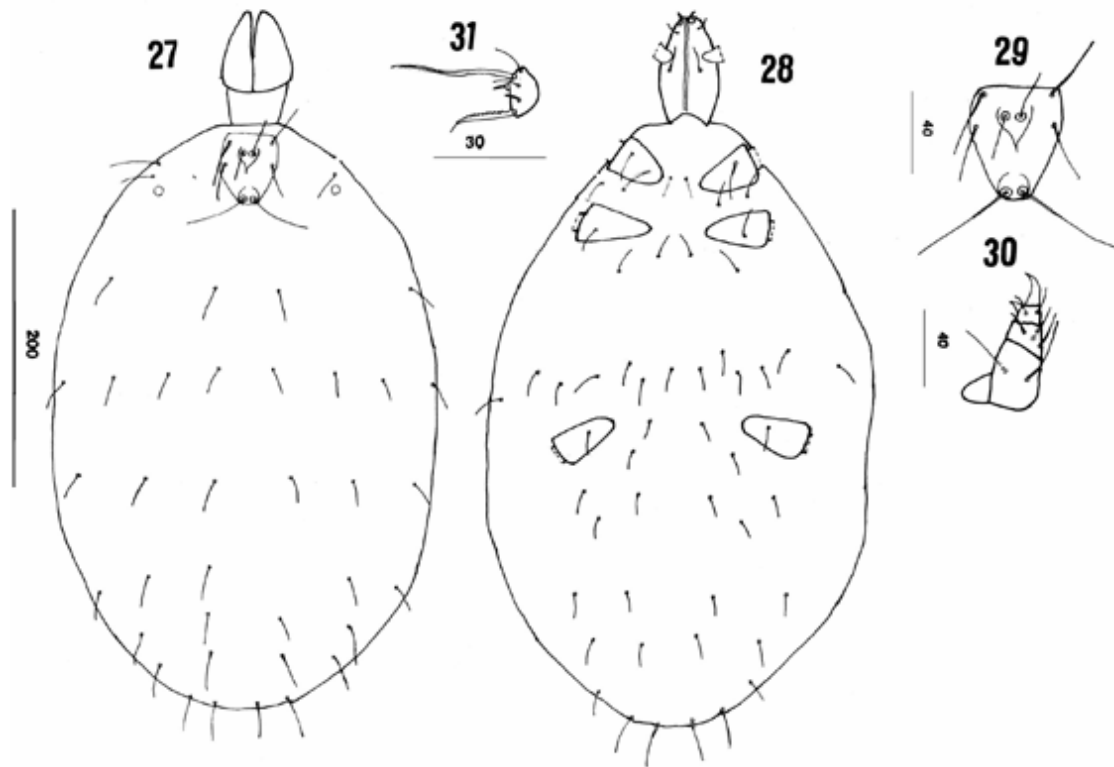
Leg setal formula. Leg I: Ta 1 ω , 2 ζ , 1B, 16N; Ti 2 ϕ , 1 κ , 12N; Ge 1 σ , 10N; Tf 8N; Bf 4N; Tr 2N; Cx 1N (Fig. 32). Leg II: Ta 1 ω , 1 ζ , 1B, 15N; Ti 2 ϕ , 12N; Ge 1 σ , 9N; Tf 5N; Bf 4N; Tr 2N; Cx 1N (Fig. 33). Leg III: Ta 1 ζ , 1B, 15N; Ti 1 ϕ , 12N; Ge 1 σ , 9N; Tf 5N; Bf 4N; Tr 2N; Cx 1N (Fig. 34). Ip = 824 holotype, 826, 788

paratypes.

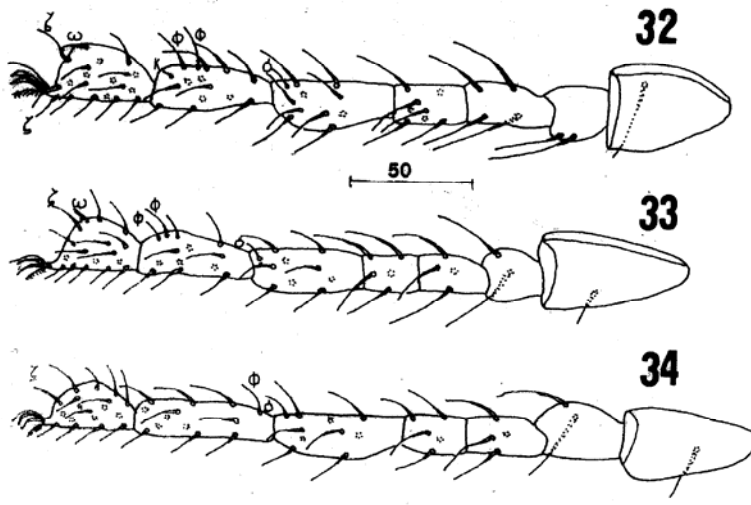
REMARKS: the genus *Abrolophus* based on larvae includes 12 species on the world: *Abrolophus benoni* (Haitlinger, 2002) from Madeira and La Palma (Canary Islands), *Abrolophus tonsor* (Southcott, 1996) from Australia, *Abrolophus unimiri* Haitlinger, 2006 from China, *Abrolophus welbourni* Yao *et al.*, 2000 from USA, *Abrolophus aitapensis* (Southcott, 1948) from New Guinea, Vietnam, China and Madagascar, *Abrolophus penelopae* Haitlinger, 2006 from Ethiopia, *Abrolophus humberti* (Haitlinger, 1996), *Abrolophus bohdani* (Haitlinger, 2003) both from Poland, *Abrolophus longi-*

collis (Oudemans, 1910) from Europe, *Abrolophus khanjani* (Haitlinger & Saboori, 1996), *Abrolophus iraninejadi* Saboori & Hajiqaanbar, 2005 both from Iran and *Abrolophus pseudolongicollis* (Haitlinger, 1987) from Poland, Italy and Slovenia (Oudemans, 1910, Southcott, 1948, 1996, Haitlinger, 1986b, 1987a, b, 1996, 2002, 2003, 2006a, b, Yao *et al.*, 2000). *A. basumtwiensis* sp. n. differs from *A. benoni* in the shorter L (54-56 vs 60-72), PW (36-38 vs 46-54), AL (32-40 vs 52-60), PL (26-32 vs 54-60), AM (22-24 vs 38-44), GL (80-88 vs 120-140) and TiIII (50-58 vs 88-104); from *A. tonsor* in the shorter W (40-44 vs 57), PW (36-38 vs 50), AL (32-40 vs 57), PL (26-32 vs 55), DS (24-40 vs 36-62) and TiIII (50-58 vs 104); from *A. unimiri* in the shorter W (40-44 vs 52-62), PW (36-38 vs 42-50), AL (32-40 vs 50-60), PL (26-32 vs 42-56), GL (80-88 vs 118-156) and TaI (42-46 vs 56-62); from *A. welbourni* in the shorter AW (32-34 vs 54-60), PW (36-38 vs 72-80), AL (32-40 vs 52-70), PL (26-32 vs 55-67) and L (54-56 vs 78-88); from *A. aitapensis* in the shorter

AW (32-34 vs 34-42), ISD (36 vs 40-52), AL (32-40 vs 41-52), PL (26-32 vs 30-40) and TiIII (50-58 vs 62-64); from *A. penelopae* in the shorter ISD (36 vs 42-46), GL (80-88 vs 98-104), AL (32-40 vs 42-46), PL (26-32 vs 38-40) and TiIII (50-58 vs 64-70); from *A. humberti* in the shorter L (54-56 vs 70-74), W (40-44 vs 72-76), AL (32-40 vs 68-72) and TiIII (50-58 vs 92-104); from *A. bohdani* in the shorter PL (26-32 vs 32-42), GL (80-88 vs 90-110), AM (22-24 vs 32-48) and DS (24-40 vs 22-52); from *A. longicollis* in the shorter L (54-56 vs 70-88), W (40-44 vs 66-76), AL (32-40 vs 68-84) and TiIII (50-58 vs 102-126); from *A. khanjani* in the shorter AL (32-40 vs 50), PL (26-32 vs 50), GL (80-88 vs 122) and TiIII (50-58 vs 90); from *A. iraninejadi* in the shorter W (40-44 vs 61), AW (32-34 vs 42), PW (36-38 vs 53), AL (32-40 vs 51), PL (26-32 vs 52), GL (80-88 vs 141) and TaI (42-46 vs 61) and from *A. pseudolongicollis* in the shorter L (54-56 vs 72-80), W (40-44 vs 60-70), PL (26-32 vs 44-52) and TiIII (50-58 vs 88-100).



Figs 27-31. *Abrolophus basumtwiensis* sp. n.: 27. idiosoma and gnathosoma, dorsal view; 28. idiosoma and gnathosoma, ventral view; 29. scutum; 30. palp; 31. palptarsus.



Figs 32-34. *Abrolophus basumtwiensis* sp. n.: 32. leg I; 33. leg II; 34. leg III.

GENUS: *Charletonia* Oudemans, 1910

***Charletonia ghanensis* sp. n.**

Figs 35-41.

TYPES. Larva Holotype (MNHWU), Elmina, Ghana, 17.03.2006, from herbaceous plants; leg. R. Haitlinger.

ETYMOLOGY. named after the name of the country where the holotype was collected.

DIAGNOSIS. Four setae between coxae II and III, fD ~146, fV ~68, NDV ~214, TaI 80, TiI 78, TiIII 86.

DESCRIPTION. - LARVA - holotype - Measurements in Table III. Dorsum with ~146 very weakly barbed setae having sharp ending. One eye on each side. Scutum somewhat wider than long with straight anterior margin and posterior margin rounded. AL shorter than ML and PL; AL distinctly barbed, ML and PL weakly barbed. AM and S both nude (Fig. 35).

Idiosoma ventrally with two setae 1a, two setae 2a and four setae between coxae II-III. Behind coxae III ~68 setae with sharp ending. All setae barbed; setae at posterior margin of opisthosoma weakly barbed (Fig. 36).

Gnathosoma with nude hypostomatae and galealae. Palpfemur and palpgenu each with one barbed seta. Palptibia with three setae: 1B, 2N (Fig. 37). Palptarsus with 6 nude setae (with eupathidium and solenidion) (Fig. 38).

Leg setal formula. Leg I: Ta 1 ω , 1 ζ , 16B, 3N; Ti 2 ϕ , 1 κ , 11B; Ge 1 σ , 1 κ , 11B; Tf 5B; Bf 4B; Tr 1B; Cx 1B (Fig. 39). Leg II: Ta 1 ω , 14B, 3N; Ti 2 ϕ , 11B; Ge 1 κ , 11B; Tf 4B (?anomaly); Bf 4B; Tr 1B; Cx 2B (Fig. 40). Leg III: Ta 17B; Ti 1 ϕ , 11B; Ge 11B; Tf 5B; Bf 2B; Tr 1B; Cx 2B (Fig. 41). Ip = 414+390+438 = 1242.

REMARKS: *C. ghanensis* sp. n. belongs to the species

group bearing over 120 dorsal setae and TiIII less than 180 μ m. This group includes *Charletonia tatianae* Haitlinger, 1987 from Madagascar and *Charletonia huensis* Haitlinger, 1986 from Vietnam (Haitlinger, 1986a, 1987b). *C. ghanensis* sp. n. differs from *C. tatianae* in the shorter AL (38 vs 56), ML (60 vs 80), PL (62 vs 78), L (88 vs 112), W (94 vs 110), DS (36-58 vs 50-82) and PW (86 vs 102) and from *C. huensis* in the shorter PL (62 vs 78), TiI (78 vs 106), TiIII (86 vs 168) and GeIII (72 vs 108).

***Charletonia grandpopensis* sp. n.**

Figs 42-52.

TYPES. Larva holotype (MNHWU), Grand Popo, Benin, 28.03.2006, from herbaceous plants; leg. R. Haitlinger; larva paratypes (MNHWU): 2 l., same data as the holotype.

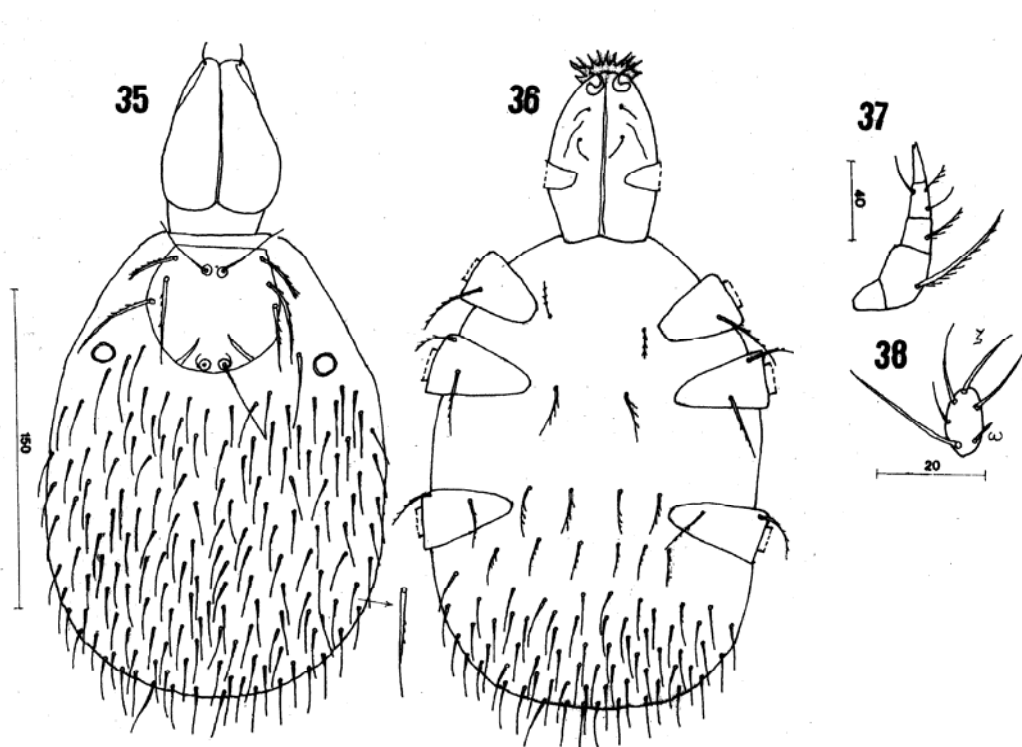
ETYMOLOGY. named referring the place where the holotype was collected.

DIAGNOSIS. Four setae between coxae II and III, fD 60, fV 34, NDV 94, TaI 130-134, TiI 162-180, TiIII 200-224.

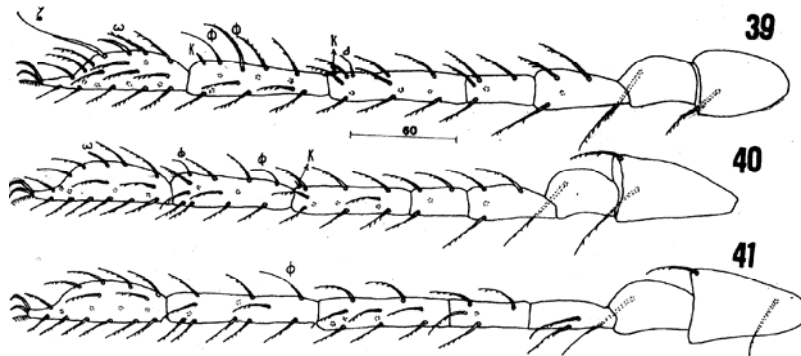
DESCRIPTION. - LARVA - holotype - Measurements are given in Table III. Dorsum with 60 very weakly barbed setae. One eye on each side III (Fig. 42). Scutum with weakly barbed setae, AM nude, S damaged (Fig. 44).

Idiosoma ventrally with two setae 1a, two setae 2a and four setae between coxae II-III, all barbed. Behind coxae III 35 weakly barbed setae, also all coxalae are barbed (Fig. 43).

Gnathosoma with barbed hypostomatae and nude galealae. Palpfemur and palpgenu each with one barbed seta. Palptibia with 3 barbed setae (Fig. 45). Palptarsus with 3 barbed setae and 3 nude setae (with eupathidium and solenidion) (Fig. 46).



Figs 35-38. *Charletonia ghanensis* sp. n.: 35. idiosoma and gnathosoma, dorsal view; 36. idiosoma and gnathosoma, ventral view; 37. palp; 38. palptarsus.

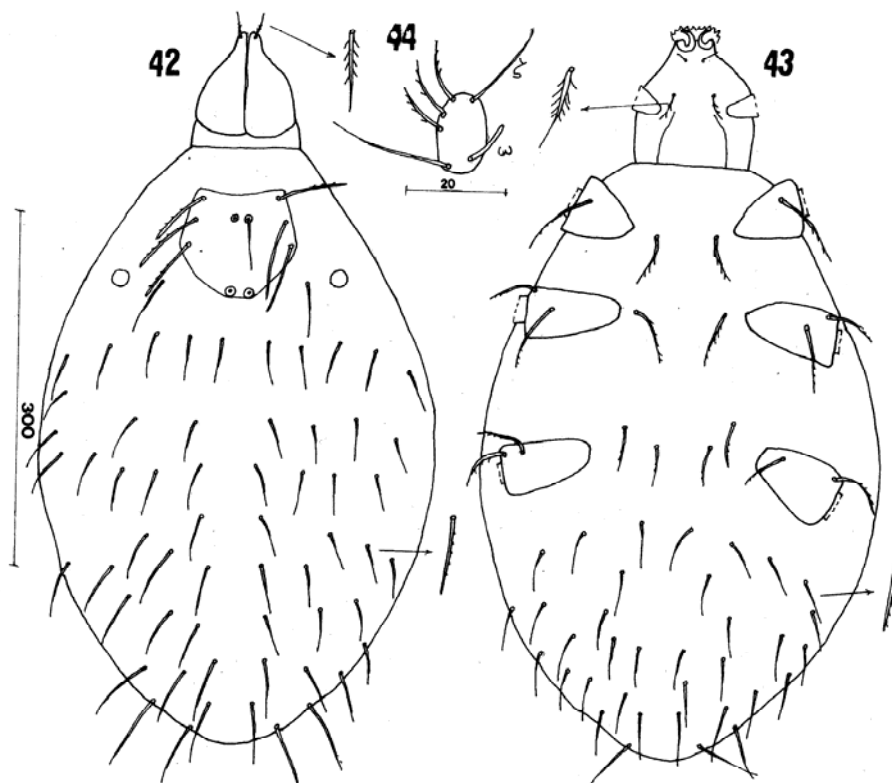


Figs 39-41. *Charletonia ghanensis* sp. n.: 39. leg I; 40. leg II; 41. leg III.

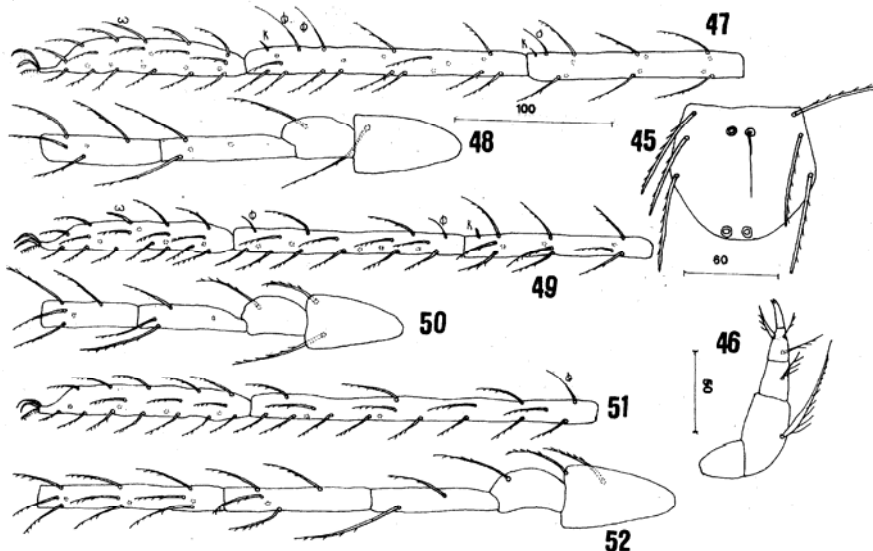
Leg setal formula. Leg I: Ta 1 ω , 21B; Ti 2 ϕ , 1 κ , 18B; Ge 1 σ , 1 κ , 12B; Tf 5B; Bf 4B; Tr 1B; Cx 1B (Figs 47, 48). Leg II: Ta 1 ω , 19B; Ti 2 ϕ , 17B; Ge 1 κ , 12B; Tf 5B; Bf 4B; Tr 1B; Cx 2B (Figs 49, 50). Leg III: Ta 19B; Ti 1 ϕ , 17B; Ge 12B; Tf 5B; Bf 2B; Tr 1B; Cx 2B (Figs 51, 52). Ip = 2144 holotype, 2030 paratype.

REMARKS: *C. grandpopensis* sp. n. belongs to the species group with four setae between coxae II-III, one palpgenuala, TaI 125-145 and TiIII 180-230. This group includes: *Charletonia wrighti* Southcott, 1991 from USA, *Charletonia lawrencei* Southcott, 1966 from RSA,

Charletonia rageaui Southcott, 1966 from New Caledonia, *Charletonia southcotti* Kawashima, 1961 from Japan, *Charletonia danangensis* Haitlinger, 1986 from Vietnam, *Charletonia striaticeps* Southcott, 1991, *Charletonia froggati* (Oudemans, 1910), *Charletonia tragardhi* Southcott, 1966, *Charletonia buforania* Womersley, *Charletonia vitzthumi* Southcott, 1966, *Charletonia feideri* Southcott, 1966, *Charletonia paoli* Southcott, 1966 and *Charletonia banksi* Southcott, 1966 all from Australia (Kawashima, 1961, Southcott, 1966, 1991, Haitlinger, 1986a). The new species differs from *striaticeps* in the shorter AW (60-64 vs 73-96), MW



Figs 42-44. *Charletonia grandpopenis* sp. n.: 42. idiosoma and gnathosoma; 43. idiosoma and gnathosoma, ventral view; 44. palptarsus.



Figs 45-52. *Charletonia grandpopenis* sp. n.: 45. scutum; 46. palp; 47. leg I, tarsus - genu; 48. leg I, telofemur - coxa; 49. leg II, tarsus - genu; 50. leg II, telofemur - coxa; 51. leg III, tarsus - tibia; 52. genu - coxa.

C (78-80 vs 81-101), L (82-90 vs 89-109), longer AL (64-66 vs 34-53), ML (62-64 vs 33-44) and PL (62-68 vs 29-38); from *C. wrighti* in longer AL (64-66 vs 55), PL (62-68 vs 50), TaI (130-134 vs 124), TiIII (200-224 vs 194) and fV (34 vs 22); from *C. froggati* in the shorter AW (60-64 vs 73-77), ML (62-64 vs 83-90), PW (90-92 vs 99-100), ISD (52-60 vs 61-71), 1b (62-76 vs 110), proximal 2b (54-72 vs 105) and 1a (34-44 vs 90); from *C. tragardhi* in the shorter AW (60-64 vs 76), longer

PW (90-92 vs 77), AL (64-66 vs 52), PL (62-68 vs 40) and DS (44-72 vs 30-37); from *C. buforania* in longer AL (64-66 vs 36-42), ML (62-64 vs 34-42), PL (62-68 vs 32-42), DS (44-72 vs 28-35) and TiIII (200-224 vs 192); from *C. vitzthumi* in the shorter AW (60-64 vs 79-85), L (82-90 vs 96-101), AP (36-42 vs 41-54), TaI (130-134 vs 150), longer AL (64 vs 44-47), ML (62-64 vs 34-41), PL (62-68 vs 30-33) and DS (44-72 vs 28-40); from *C. lawrencei* in the shorter AW (60-64 vs 81), MW

(78-80 vs 91), PW (90-92 vs 104), 1a (34-44 vs 54), longer AL (64 vs 54), ML (62-64 vs 45), PL (62-68 vs 47) and DS (44-72 vs 30-45); from *C. rageaui* in fD (60 vs 94), the shorter AW (60-64 vs 78-84), MW (78-80 vs 87-91), PW (90-92 vs 97-102), longer PL (62-68 vs 44-47) and DS (44-72 vs 32-56); from *C. southcotti* in fD (60 vs 75), the shorter AW (60-64 vs 75-79), ISD (52-60 vs 68-73), L (82-90 vs 99-104) and longer PL (62-68 vs 50-52); from *C. danangensis* in fD (60 vs 86), the shorter AW (60-64 vs 80), AL (64 vs 72), TaI (130-134 vs 152), 2a (52-56 vs 70) and 1b (62-76 vs 94); from *C. feideri* in fD (60 vs 86), the shorter AW (60-64 vs 77), MW (78-80 vs 85-87), longer ML (62-64 vs 48-54) and PL (62-68 vs 45-46); from *C. paoli* in fD (60 vs 98), the shorter AW (60-64 vs 78), longer ML (62-64 vs 52) and PL (62-68 vs 36-43); from *C. banksi* in fD (50 vs 97), the shorter AW (60-64 vs 77-83), MW (78-80 vs 90-96), PW (90-92 vs 101-108), longer AL (64 vs 52-60), ML (62-64 vs 47-55) and PL (62-68 vs 38-52).

***Charletonia beninensis* sp. n.**

Figs 53-63.

TYPES. Larva Holotype (MNHWU), Grand Popo, Benin, 28.03.2006, from undetermined Orthoptera; leg. R. Haitlinger; larva paratypes (MNHWU): 28 l., the same data as the holotype; 2 l., Elmina, Ghana, 17.03.2006, from herbaceous plants.

ETYMOLOGY. named after the name of the country where the holotype was collected.

DIAGNOSIS. One palpgenuala, four setae between coxae II-III, fD 66, fV 46, NDV 112, TaI 156-170, TiI 180-200, TiIII 230-252.

DESCRIPTION. - LARVA - holotype - Measurements in Table IV. Dorsum with 66 weakly barbed setae. One eye on each side (Fig. 53). Scutum punctate with anterior margin concave and posterior margin rounded. Scutalae slightly barbed. AL and ML > PL. Sensillae AM and S both nude (Fig. 55).

Idiosoma ventrally with 2 setae 1a, 2 setae 2a and 4 setae between coxae II-III. Beyond coxae III 46 setae. Coxalae I-III weakly barbed; all ventral setae weakly barbed (Fig. 54).

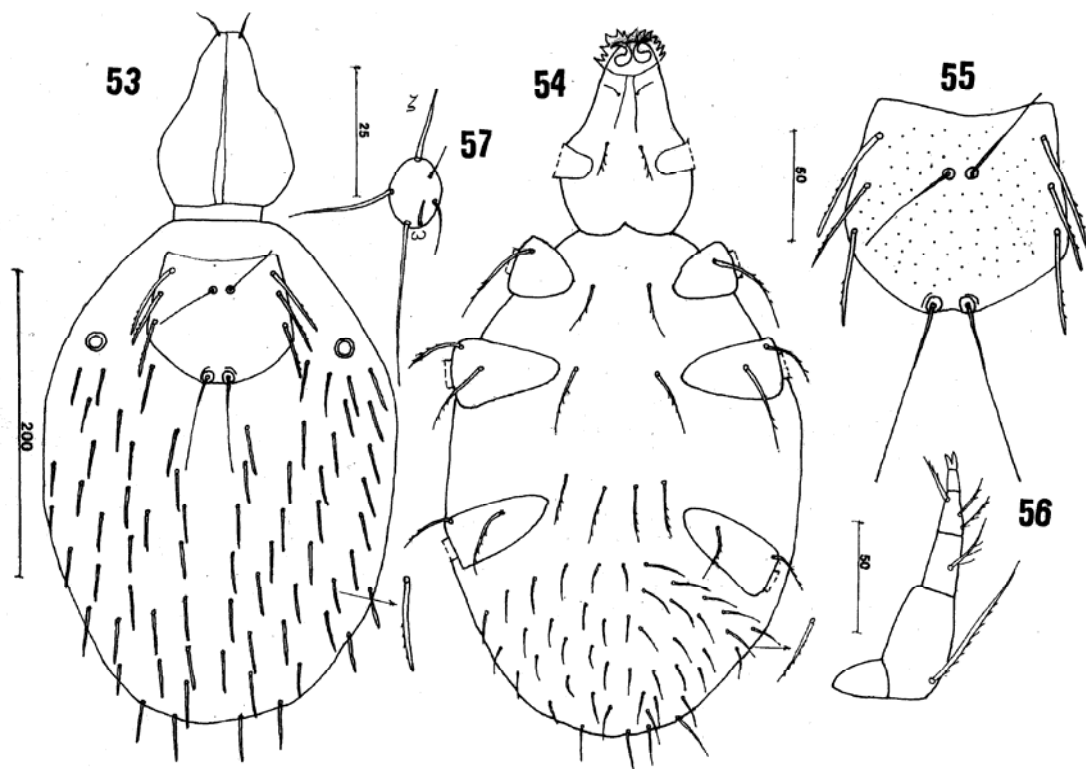
Gnathosoma with nude galealae and slightly barbed hypostomalae. Palpfemur and palpgenu each with one barbed seta. Palptibia with 3 weakly barbed setae (Fig. 56). Palptarsus with 6 nude setae (with eupathidium and solenidium) (Fig. 57).

Leg setal formula. Leg I: Ta 1 ω , 22B; Ti 2 ϕ , 1 κ , 1Cp, 18B; Ge 1 σ , 12B; Tf 5B; Bf 4B; Tr 1B; Cx 1B (Figs 58, 59). Leg II: Ta 1 ω , 20B; Ti 2 ϕ , 18B; Ge 12B; Tf 5B; Bf 4B; Tr 1B; Cx 1B (Figs 60, 61). Leg III: Ta 21B; Ti 1 ϕ , 18B; Ge 12B; Tf 5B; Bf 2B; Tr 1B; Cx 1B (Figs 62, 63). Ip = 2362 holotype, 2346-2552 paratypes.

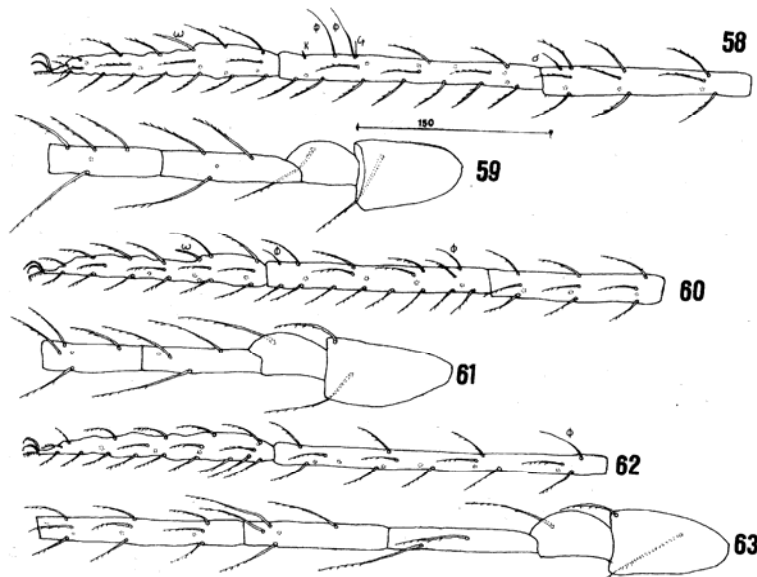
REMARKS: *C. beninensis* sp. n. belongs to the species group with one palpgenuala, four intercoxalae, TaI 145-170 and TiIII 220-260. This group includes: *Charletonia okinawaensis* (Kitahara & Takara, 1964) from Japan, *Charletonia areolata* (Tragårdh, 1908), *Charletonia naivashae* Southcott, 1991 both from Kenya, *Charletonia enghoffi* Southcott, 1991 from Canary Islands, *Charletonia nishidai* Southcott, 1991 from USA, *Charletonia vitzthumi* Southcott, 1966 from Australia, *Charletonia lawrencei* Southcott, 1966 from RSA, *Charletonia rageaui* Southcott, 1966 from New Caledonia, *Charletonia edytae* Haitlinger, 1987 and *Charletonia arlettae* Haitlinger, 1987 both from Madagascar (Kitahara & Takara, 1964, Southcott, 1966, 1991, Haitlinger, 1987b). *C. beninensis* sp. n. differs from *C. okinawaensis* in fV (46 vs 37), the shorter ISD (60-72 vs 73-75), L (100-114 vs 109-129), TiI (192-200 vs 203-209), AW/ISD (1.17-1.40 vs 1.03-1.07) and TiIII/AW (2.73-3.15 vs 3.12-3.25); from *C. areolata* in fD (66 vs 97), fV (46 vs 34), longer PW (104-114 vs 91-103), AL (66-70 vs 38-55) and ML (52-70 vs 40-53); from *C. enghoffi* in fD (66 vs 76), fV (46 vs 32), the shorter AW (80-84 vs 86-91), ISD (60-72 vs 73-77), AL (66-70 vs 71-78), AM (52-60 vs 70-75), S (78-92 vs 116-129), 1a (36-44 vs 69-75) and palptibialae (N-N vs B-N); from *C. naivashae* in the shorter PL (50-58 vs 64-71), 1a (36-44 vs 48-54), longer AW (80-84 vs 65-68), MW (90-98 vs 75-82), PW (104-114 vs 88-95), W (114-120 vs 96-104), AAS (38-40 vs 29-31), AW/ISD (1.17-1.40 vs 0.94-0.96) and fV (46 vs 30); from *C. nishidai* in fD (66 vs 79), fV (46 vs 26), galealae (N vs B), the shorter AM (52-60 vs 64-82), longer DS (max. 62 vs max. 46), AL (66-70 vs 53-62) and AW/ISD (1.17-1.40 vs 1.03-1.17); from *C. vitzthumi* in fV (46 vs 30), galealae (N vs B), longer W (114-120 vs 96-100), AL (66-70 vs 44-47), ML (52-70 vs 34-41), PL (50-58 vs 30-33), 1b (70-96 vs 65) and DS (max. 62 vs max. 40); from *C. lawrencei* in galealae (N vs B), the shorter 1a (36-42 vs 54), longer L (100-114 vs 91), AL (66-70 vs 54), ML (52-70 vs 45), longer TaI (156-170 vs 142); from *C. rageaui* in fD (66 vs 94), galealae (N vs B), longer PL (50-58 vs 44-47), W (114-120 vs 103-107) and TiIII (230-252 vs 219); from *C. edytae* in fD (66 vs 86), fV (46 vs 34), the shorter AW (80-84 vs 96), PL (50-58 vs 70), S (78-92 vs 102) and DS (30-62 vs 60-72) and from *C. arlettae* in the shorter AL (66-70 vs 78-90), ML (52-70 vs 70-86), PL (50-58 vs 66-72), ISD (60-72 vs 72-76), 1a (36-42 vs 54-64), 2a (50-60 vs 76-78) and TiIII (230-252 vs 256-264).

***Charletonia brunni* (Oudemans, 1910)**

MATERIAL. 1 l., Assum Fosu, ~150 km to north from Cape Coast, Ghana, 18.03.2006; 2 l., Abomey, Benin, 27.03.2006; all from undetermined Orthoptera. This species was known hitherto from Nigeria [wrongly mentioned by Oudemans (1910) from Benin] and from Ethiopia (Haitlinger, 2005b). First record for Ghana and for Benin.



Figs 53-57. *Charletonia beninensis* sp. n.: **53.** idiosoma and gnathosoma, dorsal view; **54.** idiosoma and gnathosoma, ventral view; **55.** scutum; **56.** palp; **57.** palptarsus.



Figs 58-63. *Charletonia beninensis* sp. n.: **58.** leg I, tarsus - genu; **59.** leg I, telofemur - coxa; **60.** leg II, tarsus - genu; **61.** leg II, telofemur - coxa; **62.** leg III, tarsus - tibia; **63.** leg III, genu - coxa.

Charletonia braunsi (Oudemans, 1910)

MATERIAL. 22 l., Abrafo, ~30 km to North from Cape Coast, Ghana, 17.03.2006, from undetermined Orthoptera. This species was hitherto known from Guinea and Ethiopia (Oudemans, 1910, Southcott, 1966, Haitlinger, 2005b). First record for Ghana.

Lomeustium gen. n.

TYPE SPECIES. *Lomeustium togoensis* sp. n.

ETYMOLOGY. named after town Lome where the holotype was collected.

DIAGNOSIS. fCx 1-1-1, fnTr 3-3-3, pedotarsalae 3-3-3 (one pulviform), palp with one trochanterala, 3

palpfemoralae, 4-5 palpgenualae, 3 palptibialae, palp claw divergent, scutum lacks.

REMARKS: In the subfamily Balaustiinae 8 genera were known: *Balaustum* von Heyden, 1826, *Myopongia* Southcott, 1961, *Pollux* Southcott, 1961, *Bursaustum* Haitlinger, 2000, *Palenquistium* Haitlinger, 2000, *Guaustum* Haitlinger, 2000, *Italustum* Haitlinger, 2000 and *Fozustum* Haitlinger, 2005 (Southcott, 1961, Haitlinger, 2000a, b, 2005a). The new genus *Lomeustum* differs from all these genera in bifurcate palp claw (excluding *Fozustum*), 3 palpfemoralae (excluding *Pollux* and *Fozustum*) and 4 (rarely 5) palpgenualae. Moreover, from *Pollux* it differs in trochanteralae (3-3-3 vs 2-3-3) and from *Fozustum* in fnCx (2-2-2 vs 1-1-1).

***Lomeustum togoensis* sp. n.**

Figs 64-70.

TYPES. Larva holotype (MNHU), Lome, Togo, 30.03.2006, from herbaceous plants; leg. R. Haitlinger; larva paratypes (MNHU): 10 l., the same data as the holotype; 18 l., Winneba, 15.03.2006, 2 l., Kumasi, Ghana, 18.03.2006, 1 l., at lake Bosumtwi, 18.03.2006; 10 l., Grand Popo, Benin, 28.03.2006.

ETYMOLOGY. named after the name of the country

where the holotype was collected.

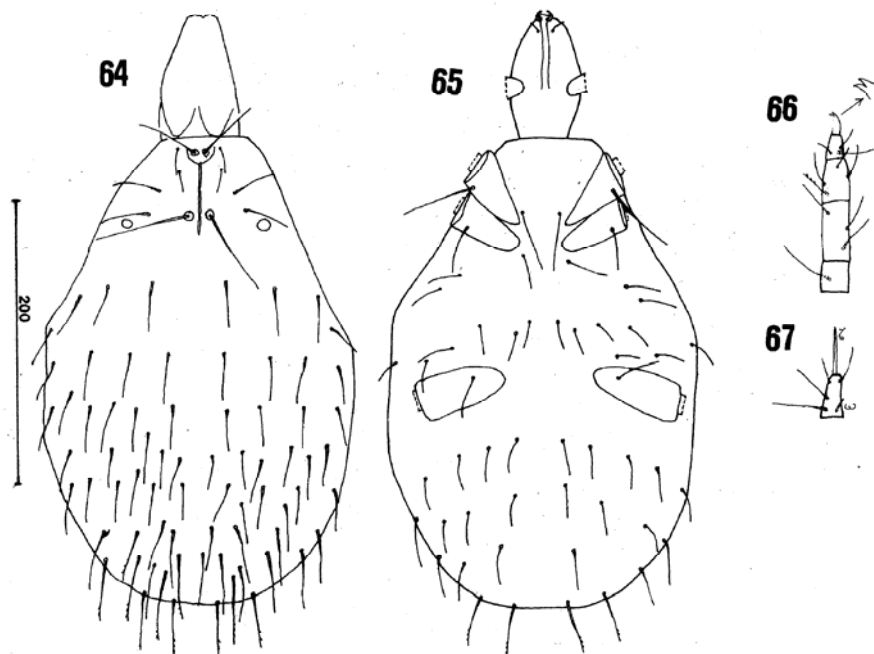
DIAGNOSIS. fD 72, ISD 50-54, AL 18-26, S 62-72, TaI 56-64, TiI 62-72.

DESCRIPTION. - LARVA - holotype - Measurements in Table IV. Dorsum with 72 nude setae (excluding some setae placed at posterior margin of idiosoma, with very short barbs at top). One eye on each side. Scutum lacking, $AL < ML < PL$, all nude. Sensillae AM and S both nude. At bases of AM surrounding line (Fig. 64).

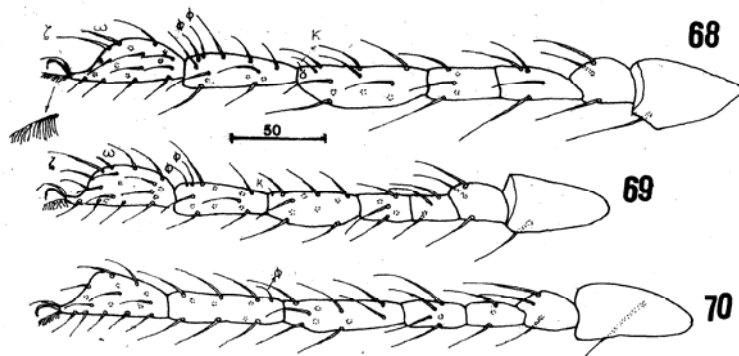
Idiosoma ventrally with relatively long setae 1a, between coxae II-III 17 nude setae, beyond coxae III 26 setae all nude excluding some weakly barbed setae at posterior margin of idiosoma. Coxae I-III, each with one nude seta (Fig. 65).

Gnathosoma with nude hypostomale and nude galealae. Palp with one trochanterala, 3 palpfemoralae, 4 (rarely 5) palpgenualae and 3 palptibialae, all nude; palpal claw divergent (Fig. 66). Palptarsus with 6 nude setae (with eupathidium and solenidium)(Fig. 67).

Leg setal formula. Leg I: Ta 1 ω , 1 ζ , 17N; Ti 2 ϕ , 11N; Ge 2 σ , 1 κ , 10N; Tf 5N; Bf 4N; Tr 3N; Cx 1N (Fig. 68). Leg II: Ta 1 ω , 1 ζ , 17N; Ti 2 ϕ , 11N; Ge 1 κ , 10N; Tf 5N; Bf ?3N; Tr 3N; Cx 1N (Fig. 69). Leg III: Ta 16N; Ti 1 ϕ , 10N; Ge 10N; Tf 5N; Bf 3N; Tr 3N; Cx 1N (Fig. 70). Ip = 984 holotype, 1008-1056 paratypes.



Figs 64-67. *Lomeustum togoensis* sp. n.: **64.** idiosoma and gnathosoma, dorsal view; **65.** idiosoma and gnathosoma, ventral view; **66.** palp; **67.** palptarsus.



Figs 68-70. *Lomeustium togoensis* sp. n.: **68.** leg I; **69.** leg II; **70.** leg III.

FAMILY: Eutrombidiidae Thor, 1935

GENUS: *Eutrombidium* Verdun, 1909

***Eutrombidium pelebinum* sp. n.**

Figs 71-77.

TYPES. Larva holotype (MNHWU), Pélébina, ~150 km south to Natitingou, Benin, 26.03.2006, from undetermined Orthoptera; leg. R. Haitlinger; larva paratypes (MNHWU): 3 l., the same data as the holotype.

ETYMOLOGY. named referring the place where the holotype was collected.

DIAGNOSIS. Genu II with one solenoidala. Distal setae on coxae I-III with only slight incision at top. Lateral pygosomal seta more than 100 μ m long. AW 100, SA/SP 1.09-1.10, HS/PLN 3.08-3.18.

DESCRIPTION. - LARVA - holotype - Measurements are given in Table V. Idiosoma elongate with 19 nude setae (without pygosomal setae) arranged 4-5-6-4. Pygosomal setae (LPS) long > 100 μ m, middle setae shorter, all slightly barbed at the top. Two pairs of eyes present. Scutum punctate. AL longer or equal in length with PL. Sensillae and scutalae are bare. Scutellum punctate, oval, with 2 bare setae (Fig. 71).

Idiosoma ventrally with 2 setae between coxae III and posterior to coxae III 10 nude setae (without pygosomal setae). Distal coxala I and coxalae II-III, each with very weakly divergent distal part. Proximal coxala I thin and nude. Gnathosoma with conical hypostomalae (Fig. 72). Palptrochanter, palpfemur and palpgenu without setae. Palptibia with nude setae and a conical seta close to tibia claw (Fig. 74). Palptarsus with 6 setae (with solenidion and eupathidium) (Fig. 73).

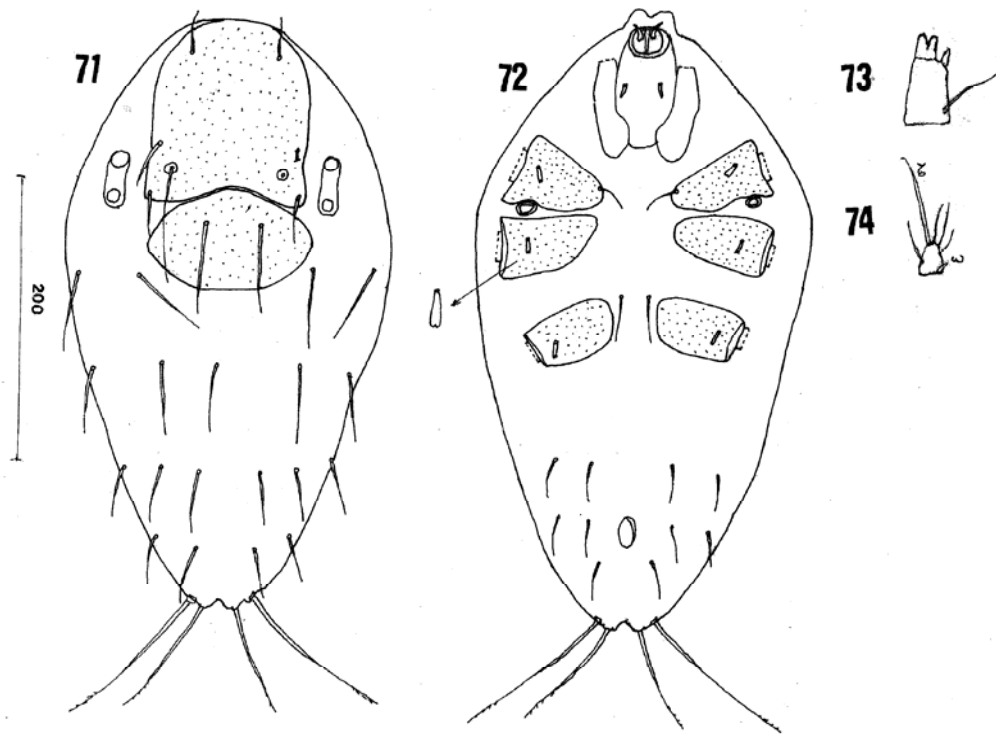
Leg setal formula. Leg I: Ta 1 ω , 1 ζ , 16N, 2B; Ti 2 ϕ , 6N; Ge 1 σ , 5N; Fe 5N; Tr 1N; Cx 2N (Fig. 75).

Leg II: Ta 1 ω , 5B, 7N; Ti 1 ϕ , 5N; Ge 1 σ , 2N; Fe 5N; Tr 1N; Cx 1N (Fig. 76). Leg III: Ta 12; Ti 5N; Ge 1 σ , 2N; Fe 5N; Tr 1N; Cx 1N (Fig. 77). Ip = 898 holotype, 900, 884, 888.

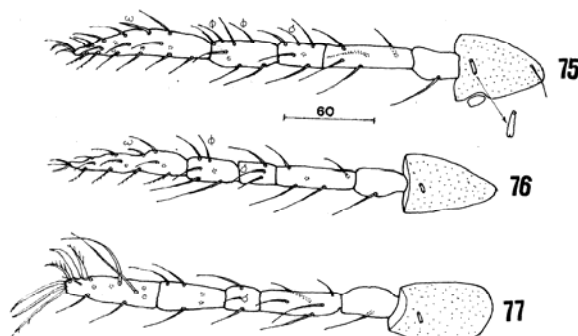
REMARKS: *E. pelebinum* sp. n. belongs to the species group without deeply cleft coxalae with unequal lobes. To this group belong *Eutrombidium feldmanmuhsamae* Feider, 1977, *Eutrombidium orientale* Southcott, 1993, *Eutrombidium africanum* Southcott, 1993, *Eutrombidium trigonum* (Hermann, 1804), *Eutrombidium indicum* Southcott, 1993, *Eutrombidium verdense* Southcott, 1993, *Eutrombidium centrale* Southcott, 1993, *Eutrombidium australiense* Southcott, 1993, *Eutrombidium robauxi* Southcott, 1993, *Eutrombidium macfarlanei* Southcott, 1993, *Eutrombidium tehranicum* Iravanlou, Kamali & Talebi, 2000, *Eutrombidium aegyptium* Iravanlou, Kamali & Talebi, 2000, *Eutrombidium fathipouri* Iravanlou, Kamali & Talebi, 2000, *Eutrombidium elburzensis* Iravanlou, Kamali & Talebi, 2000, *Eutrombidium sorbasiensis* Mayoral & Barranco, 2004, *Eutrombidium fortunatae* Haitlinger, 2005, *Eutrombidium sigirjanum* Haitlinger, 2006 and *Eutrombidium djordjevici* Saboori & Pesic, 2006 (Feider, 1977, Southcott, 1993, Iravanlou *et al.*, 2000, Mayoral & Barranco, 2004, Haitlinger, 2005a, 2006b, Saboori & Pesic, 2006). The new species differs from *E. feldmanmuhsamae* in lacking lanceolate AL scutalae, longer TaI (88-90 vs 71-76) and LPS (112-118 vs 72); from *E. orientale* in the shorter SB (76-80 vs 81-95), W (112-116 vs 125-147), SA(20-22 vs 29-33), AL (34-40 vs 43-48), LSS (92-106 vs 122-145) and longer LPS (112-118 vs 75-90); from *E. africanum* in the shorter PW (104-108 vs 115-124), SB (76-80 vs 88-91), SA (20-22 vs 27-38), AL (34-40 vs 47-61), LSS (92-106 vs 122-143) and S (70-76 vs 78-90) and AM (30-34 vs 50-58); from *E. trigonum* in the shorter PW (104-108 vs 116-130), SB (76-80 vs 87-101) and longer TaI (88-90 vs 78); from *E. indicum* in the shorter L (122-124 vs 134), W (112-116 vs 122-125), AM (30-34 vs 45-48), S (70-76 vs 80-90) and LSS (92-106 vs 113-115); from *E. verdense* in the shorter PW (104-108 vs 119-124), W (112-116 vs 131-140), SA (22-24 vs 29-30), LSS (92-106 vs 123-143) and longer LPS (112-118 vs 91-98); from *E. centrale* in the shorter LSS (92-106 vs 107-117), longer TaI (88-90 vs 68-73) and Til (44-46 vs 31-39); from *E. australiense* in longer MA (52-60 vs 38-47), AW (100 vs 71-87), L (122-124 vs 95-

111), S (70-76 vs 50-68) and LPS (112-118 vs 54-72); from *E. robauxi* in longer SB (76-80 vs 63-72), LPS (112-118 vs 81-98) and TaI (88-90 vs 67-73); from *E. macfarlanei* in longer L (122-124 vs 82), PL (34 vs 27), LPS (112-118 vs 96) and femorale (5-5-5 vs 6-5-4); from *E. tehranicum* in the shorter TiI (42-46 vs 62), longer L (120-124 vs 90), AL (34-40 vs 25), PL (34 vs 25), TaI (88-90 vs 76), LPS (112-118 vs 99) and MA (52-60 vs 40); from *E. aegyptium* in the shorter S (70-76 vs 86), longer ASB (94-102 vs 84), AL (34-40 vs 27), PL (34 vs 21), SL (64-68 vs 36) and TaI (88-92 vs 74); from *E. elburzensis* in the shorter W (110-116 vs 126), S (70-76 vs 86), TiI (42-46 vs 66), longer PL (34 vs 21) and SL (64-68 vs 44); from *E. fathipouri* in the shorter AL (34-40 vs 60), longer PL (34 vs 27), S (70-76 vs 57)

and SL (64-68 vs 34); from *E. sorbasiensis* in different AL (nude vs enlarged and barbed), longer PL (34 vs 20-28), PLN (22-30 vs 13-20), SL (64-68 vs 28-35), LPS (112-118 vs 85-100) and TaI (88-92 vs 73-83); from *E. fortunatae* in the shorter PW (104-108 vs 130), S (70-76 vs 84), SA (22-24 vs 32), LSS (92-106 vs 134), longer LPS (112-118 vs 80), SL (64-68 vs 36) and TaI (88-92 vs 74); from *E. sigirijanum* in longer PW (104-108 vs 90), AL (34-40 vs 24), PL (34 vs 22), L (120-124 vs 94), SB (76-80 vs 64) and TaI (88-92 vs 64) and from *E. djordjevici* in the shorter W (110-116 vs 116-136), SA (22-24 vs 25-37), AM (30-34 vs 35-50), LSS (92-106 vs 106-134), longer SL (64-68 vs 27-33) and LPS (112-118 vs 87-99).



Figs 71-74. *Eutrombidium pelebinum* sp. n.: 71. idiosoma and gnathosoma, dorsal view; 72. idiosoma and gnathosoma, ventral view; 73. palptarsus; 74. palptibia, dorsal view.



Figs 75-77. *Eutrombidium pelebinum* sp. n.: 75. leg I; 76. leg II; 77. leg III.

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Table I.

Metric data (in μm) for *Leptus* (*L.*) *pelebinus* sp. n. (1), *Leptus* (*L.*) *elminus* sp. n. (2) and *Leptus* (*L.*) *abrafoicus* sp. n. (3).

	1	2	3		1	2	3
IL	730	311	1115	PsFd	68	48	56
IW	387	210	678	PsGd	70	36	40
AW	94	56	78	PsGv	60	28	
PW	102	70	90	TaI	202	104	124
AA	16	10	12	TiI	222	124	122
SB	14	10	14	GeI	188	90	98
ISD	64	50	58	TfI	122	56	66
L	130	82	88	BfI	134	64	62
W	120	74	100	TrI	70	42	40
AP	22	12	16	CxI	80	46	60
AAS	40	24	32	TaII	162	92	100
LN	30	20	20	TiII	200	106	110
AL	60	46	44	GeII	150	76	80
PL	62	40	54	TfII	102	54	60
AM	40	34	-	BfII	100	54	58
S	100	54	54	TrII	60	42	40
DS	38-50	36-42	42-50	CxII	88	68	62
GL	244	150	184	TaIII	202	104	114
1a	54	36	24	TiIII	320	160	152
2a	-	32	24	GeIII	174	92	90
1b	70	58	66	TfIII	150	72	72
2b	34	24	22	BfIII	136	66	72
3b	36	36	34	TrIII	70	40	40
				CxIII	84	60	60

Table II.Metric data (μm) for *Abrolophus basumtwiensis* sp. n.; H - holotype, P - paratypes.

	H	P	P	P		H	P	P	P
IL	457	406	470	588	PsFd	26	32	-	30
IW	297	254	305	318	TaI	42	46	44	42
AW	32	34	-	34	TiI	48	50	48	44
PW	38	38	-	36	GeI	48	48	48	48
AA	8	8	-	8	TfI	26	26	26	24
SB	8	8	8	8	BfI	36	32	28	28
ISD	36	36	36	36	TrI	26	26	-	26
L	56	56	54	56	CxI	48	48	-	50
W	40	44	-	42	TaII	38	40	44	40
AP	18	16	-	16	TiII	44	44	44	44
AAS	14	12	-	12	GeII	44	46	46	44
AL	34	32	36	40	TfII	22	18	20	22
PL	30	26	32	30	BfII	28	24	26	26
AM	24	24	-	22	TrII	26	24	26	32
S	56	48	50	54	CxII	60	62	56	52
DS	24-36	32-38	30-34	30-40	TaIII	36	40	40	38
GL	82	88	80	84	TiIII	56	58	56	50
1a	28	26	30	24	GeIII	52	54	52	50
1b	36	40	-	32	TfIII	26	26	28	26
2b	22	20	-	20	BfIII	32	28	28	28
3b	22	22	-	20	TrIII	32	32	30	30
					CxIII	54	54	46	44

Table III.Metric data (in μm) for *Charletonia ghanensis* sp. n. (1) and *Charletonia grandpopensis* sp. n. (2); H - holotype, P - paratypes.

	1	2	2	2		1	2	2	2
	H	H	P	P		H	H	P	P
IL	317	502	482	482	3b*	40	46	64	54
IW	222	330	324	330	3b**	40	46	50	44
AW	58	64	60	60	PsFd	56	68	66	64
MW	72	78	78	80	PsGd	24	24	28	32
PW	86	90	92	92	TaI	80	134	134	130
AA	10	10	12	10	TiI	78	180	162	168
SB	14	16	16	16	GeI	74	134	118	124
ISD	64	60	56	52	TfI	38	76	66	72
L	88	90	84	82	BfI	50	86	76	80
W	94	100	100	104	TrI	44	46	52	44
AP	54	40	42	36	CxI	50	68	58	64
AAS	26	28	32	30	TaII	76	126	126	118
LN	6	10	10	10	TiII	66	148	142	146
AL	38	64	64	66	GeII	64	122	110	102
ML	60	64	62	64	TfII	34	62	58	64
PL	62	68	62	66	BfII	46	72	70	72
AM	46	40	42	54	TrII	40	44	50	44
S	64				CxII	64	64	64	72
DS	36-52	46-70	44-68	44-72	TaIII	74	138	138	.
GL	112	96	108	106	TiIII	86	224	200	202
1a	24	44	34	38	GeIII	72	122	114	112
2a	32	56	52	56	TfIII	42	96	82	82
1b	52	76	72	62	BfIII	50	82	88	88
2b*	52	60	54	72	TrIII	50	48	54	48
2b**	38	44	46	42	CxIII	64	72	62	68

* proximal seta, ** distal seta

Table IV.

Metric data (in μm) for *Charletonia beninensis* sp. n. (1) and *Lomeustium togoensis* sp. n. (2); H - holotype, P - paratypes.

	1	1	2	2		1	1	2	2
	H	P=10	H	P=10		H	P	H	P
IL	394	330-1930	330	317-463	3b*	62	52-70	38	34-44
IW	274	222-1175	216	203-305	3b**	40	42-54		
AW	84	80-84	30	30-36	PsFd	76	76-80		
MW	92	90-98	28	26-34	PsGd	34	32-40		
PW	104	104-114	54	48-56	TaI	158	156-170	60	56-64
AA	12	10-12	10	8-10	TiI	180	192-200	62	64-72
SB	22	18-22	14	12-14	GeI	140	140-154	70	68-74
ISD	62	60-72	52	50-54	TfI	78	76-90	36	38-44
L	108	100-114			BfI	94	94-110	44	36-46
W	114	112-120			TrI	48	46-60	32	28-36
AP	46	42-50	32	30-40	CxI	70	64-76	58	52-68
AAS	38	38-40			TaII	156	150-156	56	54-62
LN	14	12-24			TiII	152	160-178	48	48-52
AL	66	66-70	18	18-26	GeII	120	114-132	52	50-58
ML	56	52-70	28	24-28	TfII	68	72-80	26	26-32
PL	50	50-58	30	30-40	BfII	80	80-92	24	32-34
AM	52	52-60	42	38-42	TrII	56	50-58	28	26-34
S	86	78-92	70	62-72	CxII	84	74-86	54	50-58
DS	36-46	30-62	30-50	28-58	TaIII	162	162-174	56	56-58
GL	146	144-166	92	96-104	TiIII	230	230-252	62	64-68
1a	42	36-44	54	40-54	GeIII	142	140-150	64	64-70
2a	54	50-60			TfIII	100	100-116	32	36-38
1b	82	70-96	60	44-60	BfIII	104	90-106	28	30-38
2b*	68	62-80	34	34-42	TrIII	60	52-64	32	30-34
2b**	44	44-56			CxIII	80	72-84	60	58-64

• proximal seta, ** distal seta

Table V.

Metric data (in μm) for *Eutrombidium pebebinum* sp. n.; H - holotype, P - paratypes.

	H	P	P	P		H	P	P	P
IL	419	1079	800	273	SS	38	40	38	42
IW	216	571	451	159	SL	64	64	66	68
L	122	122	124	120	PLN	22	24	30	24
W	112	112	116	110	TaI	90	88	88	92
AW	100	100	100	100	TiI	46	44	44	42
PW	104	104	108	104	GeI	30	32	28	30
AL	34	40	36	36	FeI	60	64	60	58
PL	34	34	34	34	TrI	34	30	34	30
AM	30	30	34	30	CxI	60	70	60	60
S	70	72	76	-	TaII	78	74	76	82
ASB	100	94	102	102	TiII	36	36	36	34
MA	60	52	54	56	GeII	24	22	22	24
SA	22	24	24	22	FeII	56	56	60	62
SP	20	22	22	20	TrII	34	30	32	32
AA	60	60	56	52	CxII	62	72	58	66
SB	76	80	80	76	TaIII	62	56	58	56
GL	84	84	80	84	TiIII	44	44	42	40
3a	42	34	36	38	GeIII	24	18	22	24
1b*	26	24	-	-	FeIII	56	64	62	56
1b**	10	10	12	10	TrIII	40	40	40	36
LPS	112	114	118	114	CxIII	62	60	62	64
HS	70	74	-	70					
LSS	106	106	92	104					

• proximal seta, ** distal seta

