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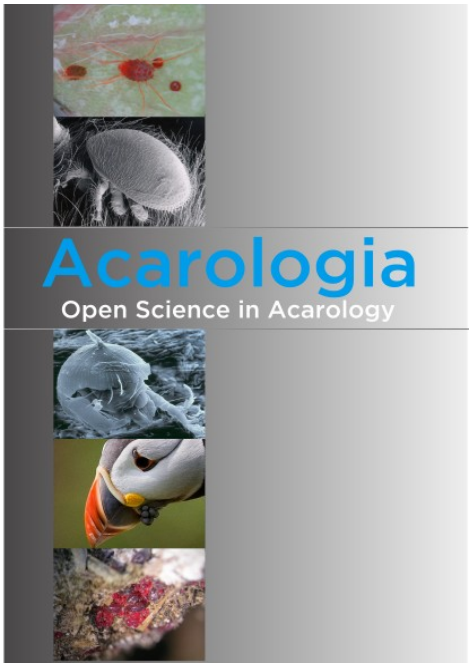
Qing-Hai Fan, Farid Faraji



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http://www1.montpellier.inra.fr/CBGP/acarologia/subscribe.php
Previous volumes (2010-2020): 250 € / year (4 issues)
Acarologia, CBGP, CS 30016, 34988 MONTFERRIER-sur-LEZ Cedex, France
ISSN 0044-586X (print), ISSN 2107-7207 (electronic)

The digitalization of Acarologia papers prior to 2000 was supported by Agropolis Fondation under the reference ID 1500-024 through the « Investissements d'avenir » programme (Labex Agro: ANR-10-LABX-0001-01)

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Mites of the genus *Oulenziella* Fan & Zhang (Acari: Winterschmidtiidae), with description of a new species from Kenya

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Original research

ABSTRACT

The genus *Oulenziella* Fan and Zhang contains two species, *O. bakeri* (Hughes) and *O. longiseta* Barbosa and Moraes. This paper describes a third species, *O. africana* **sp. n.**, collected from mango trees in Kenya, and provides a new record of *O. bakeri* for this country. We redefine the genus *Oulenziella* based on new data and provide an updated key to genera of the subfamily Oulenziinae (Acari: Astigmata: Winterschmidtiidae) and a key to species of the genus *Oulenziella*.

Keywords Sarcoptiformes; Astigmata; Kenya; Oulenziinae; new species; new record
Zoobank http://zoobank.org/1FF85B7C-B11A-4E45-A6D7-AC2D921B3196

Introduction

The genus *Oulenziella* was established by Fan and Zhang in 2015 based on *Calvolia bakeri* Hughes collected from India (Fan *et al.* 2015). It remained monotypic until the recent publication of *Oulenziella longiseta* Barbosa and Moraes, collected from the states of Mato Grosso and Bahia, Brazil (Barbosa & Moraes 2021). Both species are arboreal in tropical and subtropical areas (Fan *et al.* 2020; Barbosa & Moraes 2021). Because it is arboreal *O. bakeri* was considered a potential alternative food for biological control agents such as species in the family Phytoseiidae. *Oulenziella bakeri* is fungivorous (Fan *et al.* 2015) and has been successfully cultured in the laboratory on yeast (Liu & Zhang 2016) and mass reared on substrate containing yeast or a combination of yeast, flour, wheat bran, vermiculite and sawdust for the commercial production of *Neoseiulus californicus* (McGregor) (Phytoseiidae) in China (Jiang 2014; Zhu *et al.* 2019) for control of the two spotted spider mite, *Tetranychus urticae* (Koch) (Tetranychidae).

The life cycle of *Oulenziella bakeri* consists of five stages: egg, larva, protonymph, tritonymph and adult (no heteromorphic deutonymph observed). Fan *et al.* (2020) studied all postembryonic stages of *O. bakeri* except the deutonymph and provided ontogenetic data useful in understanding structural homologies, making taxonomic decisions, and reconstructing phylogenies. The present study proposes a third species of *Oulenziella* collected from mango trees in Kenya, provides a record of *O. bakeri* from Kenya, redefines the genus, and provides a diagnostic key to species of *Oulenziella* as well as an updated key to genera of the subfamily Oulenziinae.

Received 12 July 2021
Accepted 28 January 2022
Published 02 February 2022

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Academic editor
Auger, Philippe

https://doi.org/
10.24349/i2bo-zeic

ISSN 0044-586X (print)
ISSN 2107-7207 (electronic)

How to cite this article Fan Q. and Faraji F. (2022), Mites of the genus *Oulenziella* Fan & Zhang (Acari: Winterschmidtiidae), with description of a new species from Kenya. **Acarologia 62(1): 148-160.** https://doi.org/10.24349/i2bo-zeic

Material and methods

Specimens were slide-mounted using modified Hoyer's medium as described by Faraji and Bakker (2008) and examined using differential interference contrast microscopy. Illustrations were made using a drawing tube attached to an interference-phase contrast microscope (Nikon eclipse 80i). The tarsal ventro-terminal setae and other minute structures, e.g., spermatheca, famulus and solenidia, were re-examined and confirmed by means of a Zeiss Axio Imager 2 microscope. Images were taken using a Zeiss AxioCamHRc camera attached to the microscope, montaged with the Helicon Focus, and edited with Photoshop 2020. Idiosomal length was measured from the anterior rim to the posterior margin of the idiosoma and the width measured at the maximum width of the idiosoma between legs II and III. Setae were measured from the alveolus to the tip, and legs measured from the base of the trochanter to the tip of the claw. All measurements are given in micrometers (μm). Terminology of idiosomal chaetotaxy follows the hypothesis VI of Griffiths *et al.* (1990), that for palp and leg chaetotaxy follows Grandjean (1939) and Griffiths (1970). The holotype (circled) and three paratype females are deposited in the New Zealand Arthropod Collection, Landcare Research, Auckland, New Zealand (NZAC), and four paratype females are deposited in the Plant Health and Environment Laboratory, Auckland, New Zealand (PHEL). Acronyms of repositories follow Zhang (2018).

Systematics

Oulenziella africana Fan and Faraji, sp. n.

Zoobank: 0BF45932-8131-4395-8A69-CD50F70EB6A9

(Figures 1–7, Table 1)

Material examined

Holotype female and 3 paratype females on the same slide, mango tree, 5 km west of Thika, Kenya, 23 Nov. 2016, by H. Wainwright; 4 paratype females one a slide, same collection data as holotype.

Diagnosis

ADULT FEMALE. Idiosomal setae *sce* about 2.8–3.4× as long as *vi* and 3.6–4.2× as long as *sci*; *sci–sci* 1.8–2.3× as wide as *sci–sce*; h_2 1.3–1.9× as long as c_p and 4.7–6.9× as long as h_1; c_p 4.2–5.4× as long as c_1; e_1 2.6–3.4× as long as e_2. Opisthonotal gland opening *gla* located much closer to e_2 than to d_2. Leg I with genual solenidia σ'' 3.5–4.2× as long as σ'.

Male, larva and nymphs: Unknown.

Description

Adult female

(Figures 1–6)

Chelicerae robustly chelate (Figure 3C): fixed digit bearing 1 subterminal tooth, 3 large medial teeth and 1 small proximal tooth; movable digit bearing one small subterminal tooth, 3 large medial teeth, and 1 small proximal tooth; cheliceral setae *cha* small, conical, *chb* absent. Subcapitulum: setae *m* filiform (Figure 3D); palpal supracoxal setae *elcp* absent; dorsal and lateral palptibial setae filiform; dorsal palptarsal setae filiform, terminal palptarsal solenidion ω indistinct, present as rudimentary lines (Figure 3D).

Idiosoma (Figures 1 and 6A) oval, cuticle smooth. Prodorsal shield (Figures 1, 3A and 6D) nearly trapezoidal, finely stippled, posterior one forth areas with faint longitudinal to oblique wrinkles (Figure 6D), posterior margin medially convex and sublaterally concave. Supracoxal sclerite (Figures 3B and 6E) elongate; Grandjean's organ (Figures 1 and 3B) horn-shaped, smooth and short; supracoxal setae *scx* tapering from base to tip, medially barbed. Ocelli

Figure 1 *Oulenziella africana* **sp. n.** (adult female). Dorsal view of idiosoma.

(Figures 1, 3A and 6D) situated close to anterior corners of prodorsal shield; seta *vi* slightly longer than 4/5 of length of prodorsal shield; setae *ve* represented by alveoli, situated at lateral margins of prodorsal shield, posterior to ocelli; *sce* about 2.8–3.4× as long as *vi* and 3.6–4.2× as long as *sci*; *sci–sci* 1.8–2.3× as wide as *sci–sce*. Opisthonotal gland openings *gla* located closer to e_2 than to d_2, not distinctively coloured. Tiny opisthosomal tubercles visible on some specimens. Hysterosomal setae h_3 absent; h_2 longest, *sce*, c_p and e_1 obviously longer than others; c_1, c_2, c_3, d_1, d_2, e_2 and h_1 similar in length, f_2 positioned on ventral side of idiosoma and shorter than others; e_1 2.6–3.4× as long as e_2, h_2 1.3–1.9× as long as c_p and 4.7–6.9× as long as h_1; c_p 4.2–5.4× as long as c_1.

Coxal apodemes I (Figures 2 and 6B) joined at midline, forming a prosternal apodeme directed posteromedially; coxal plates I posteriorly extending beyond apex of prosternal apodeme, slightly concave posteromedially; coxal apodemes II (Figures 2 and 6B) directed posteromedially, coxal plates II large, extending far beyond apex of apodeme II, posterior margin concave posteromedially; sejugal apodeme faint, a simple ridge. Genital opening (Figures 2 and 6C) inverted V-shaped, situated medially between coxae III and IV, epigynal sclerite (Figure 2) situated immediately anterior to genital opening, umbrella-shaped in

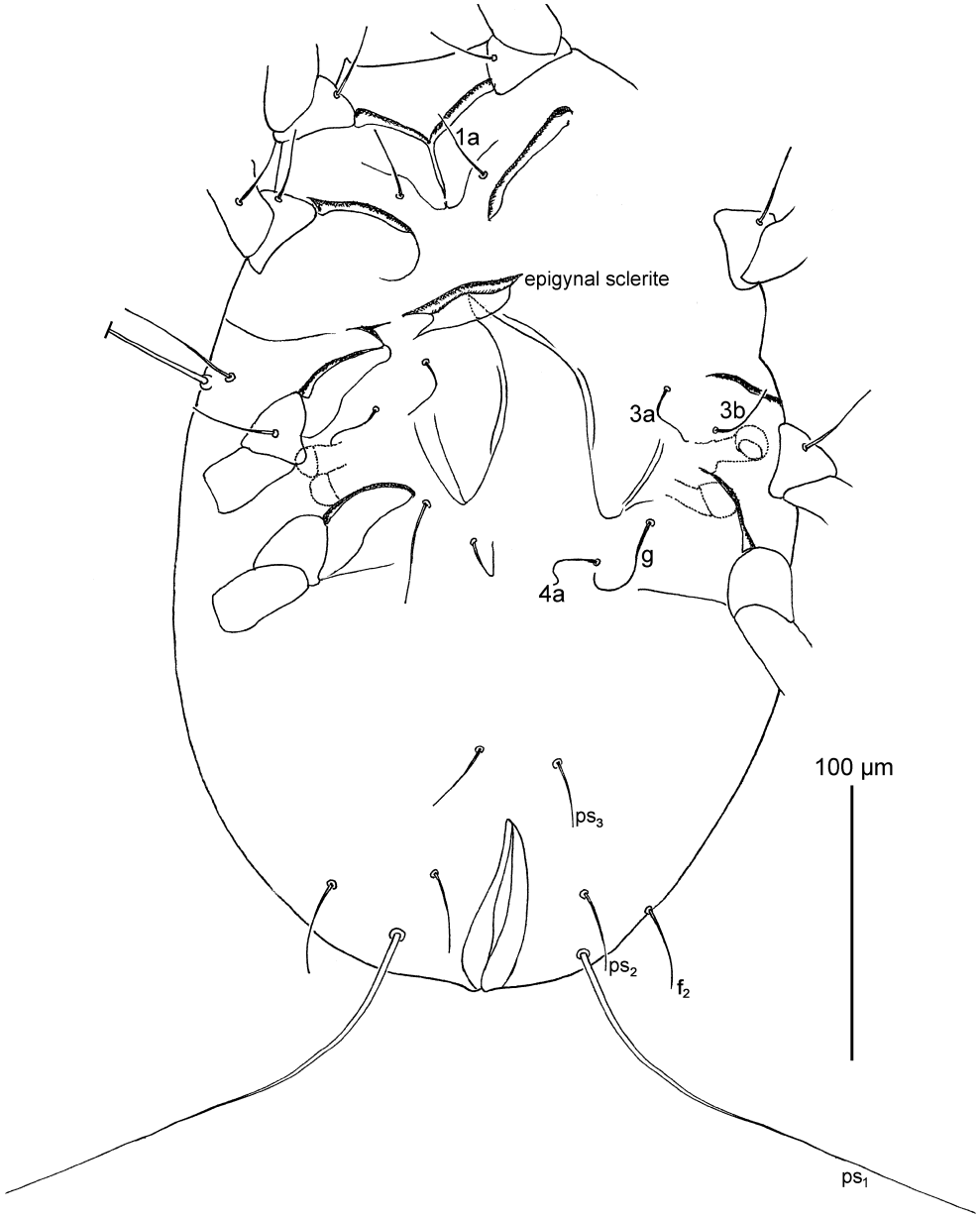

Figure 2 *Oulenziella africana* **sp. n.** (adult female). Ventral view of idiosoma.

middle, extending laterally beyond inner tips of apodemes III; apodemes III directed medially; apodemes IV directed anteromedially and jointed with post-apodemes of coxae III. Ventral setae *1a* inserted lateral to prosternal apodeme, *3a* lateral to genital opening, *g* posterior to second pair of genital papillae, *4a* posterior to lateral arms of genital opening. Anal opening far posterior to genital opening, slightly shorter than genital opening, surrounded by 3 pairs of pseudanal setae, ps_1 longest, about 4.6–5.5× as long as ps_2 and 4.8–6.1 ps_3. Copulatory opening close to posterior margin of idiosoma (Figures 3E and 6F); spermathecal duct (inseminatory canal) a thin cylindrical tube, slightly widening as it reaches spermathecal sac (seminal receptacle); sclerotised base of spermathecal sac bell-shaped, a pair of bell-shaped sclerites of oviducts situated at end of spermathecal sac, sclerites nearly as large as spermathecal base.

Legs. All setae on trochanters, femora, genua and tibiae smooth and attenuate.

Leg I (Figures 4A, 5A, C and 6G). Trochanter bearing 7–9 minute teeth on anteromedial

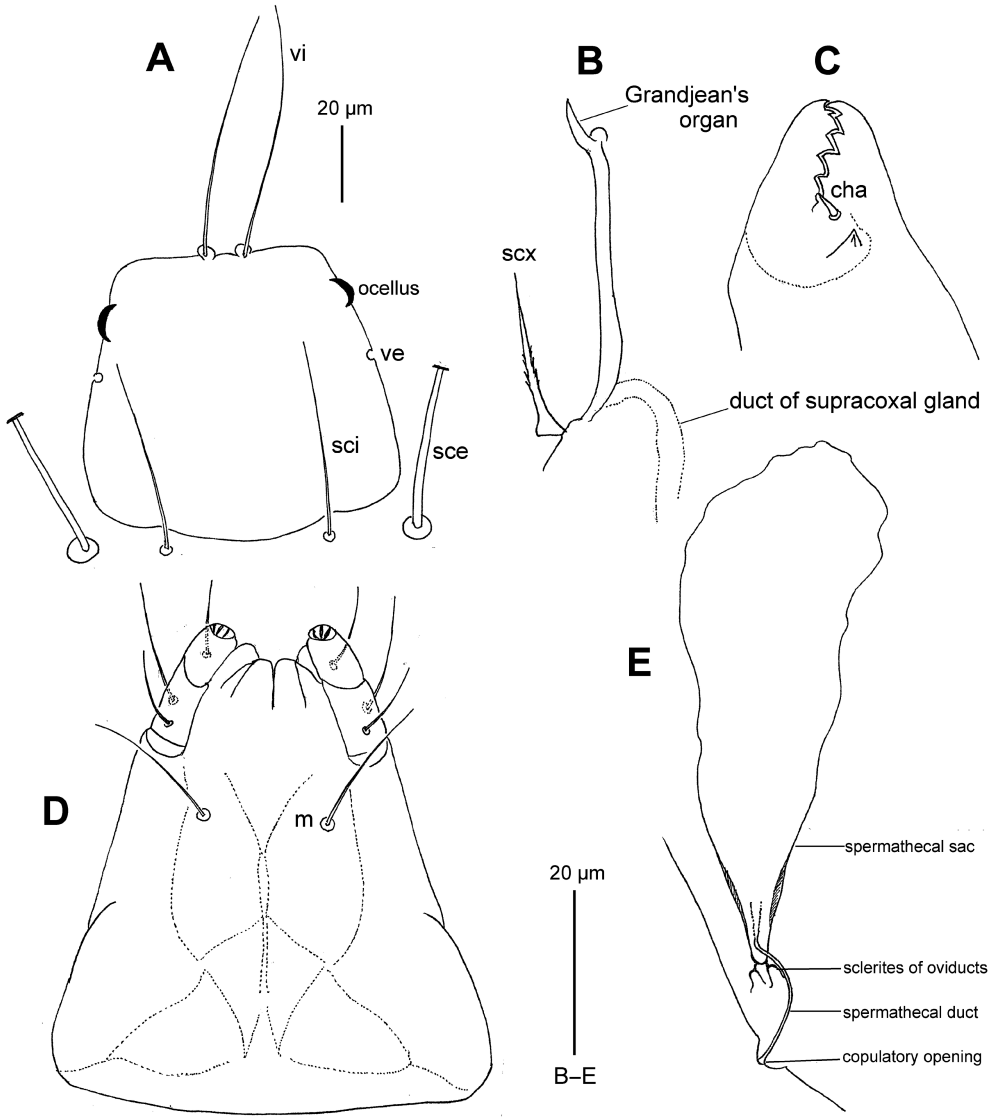

Figure 3 *Oulenziella africana* **sp. n.** (adult female). A, prodorsal shield; B, supracoxal sclerite; C, chelicera; D, subcapitulum; E, copulatory opening and spermatheca.

edge; femoral seta *vF* nearly extending to tip of genu; genual solenidia σ'': σ'= 3.5–4.2, setae *cG* as long as *mG*; tibial solenidion φ obviously extending beyond tarsal claw tip, *gT* and *hT* subequal; tarsus about 3.7–4.1× as long as its basal width, ω_1 parallel sided and tapered at its apex, ε apically bifurcate and slightly shorter than ω_2, ω_3 slightly shorter than *d*, seta *wa* 1.9–2.4× as long as *la* and 2.1–2.6× as long as *ra*, *d* nearly extending to tarsal claw tip; *e* and *f* very small and *e* slightly longer than *f*; ventro-terminal spines *s* (4.5–5.0) conical; *p* and *q* subequal (3.0–3.5) and conical; *u* and *v* subequal (2.0) and apically truncate.

Leg II (Figures 4B, 5B, D and 6H). Trochanter bearing 7–9 minute teeth on anteromedial edge; femoral *vF* nearly extending to base of genual solenidion (σ), σ nearly extending to half-length of tibia, seta *cG* as long as or slightly shorter than *mG*; tibial solenidion φ obviously extending beyond tarsal claw tip, *gT* about as long as *hT*; tarsus about 4.1–4.6× as long as its basal width, ω tapering towards its apex, seta *wa* more than 2.3–3.2× as long as *la* and *ra*, *d* nearly extending to tarsal claw tip; *e* and *f* very small; ventro-terminal spines *s* (4.0–5.0) conical; *p* and *q* subequal (3.0–3.5) and conical; *u* and *v* subequal (2.0) and apically truncate.

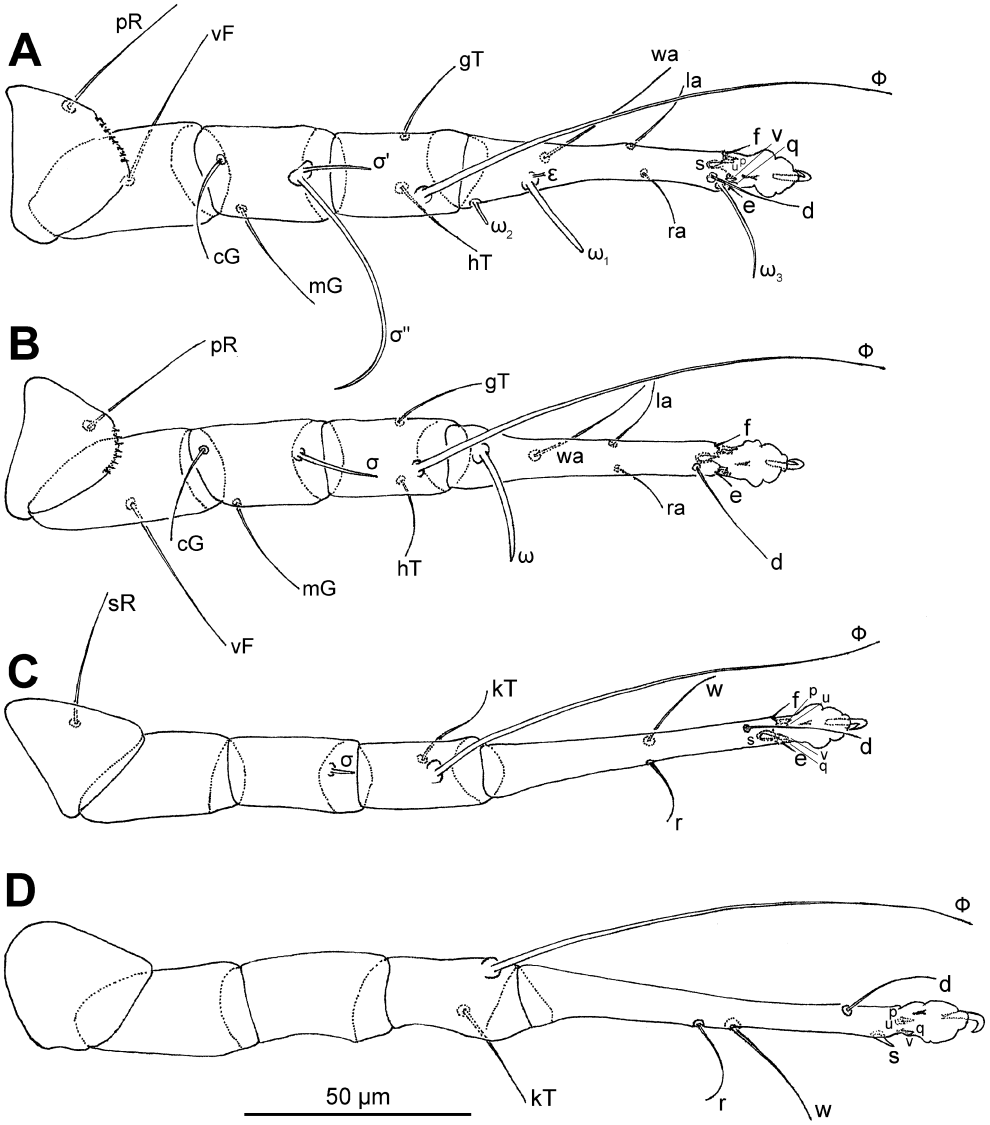

Figure 4 *Oulenziella africana* **sp. n.** (adult female). A, leg I; B, leg II; C, leg III; D, leg IV.

Leg III (Figures 4C, 5E and 6I). Femur nude; genual solenidion *σ* very small, not extending to apical rim of genu; tibial solenidion *φ* slightly extending beyond tarsal claw tip, *kT* about as long as *w* on tarsus; tarsus about 6.1–6.9× as long as its basal width; *r* and *w* situated at same level, *d* nearly extending to tarsal claw tip; *e* and *f* very small but *e* slightly longer; ventro-terminal spines *s* (4.0–5.0) conical; *p* (3.5–4.5) longer than *q* (3.0–3.5), both conical; *u* (2.5–3.5) longer than *v* (2.0–3.0), both apically truncate.

Leg IV (Figures 4D and 5F). Trochanter, femur and genu nude; tibial solenidion *φ* about extending to tarsal claw tip, *kT* about as long as *w* on tarsus; tarsus more than 5.9–6.8× as long as its basal width; *r* situated proximal to *w*, *d* extending to base of tarsal claw; *e* and *f* absent; ventro-terminal spines *s* (4.0–5.0) conical; *p* (3.5–4.0) longer than *q* (2.5–3.0), both conical; *u* and *v* subequal (2.0–2.5) and both apically truncate.

Male, larva and nymphs

Unknown.

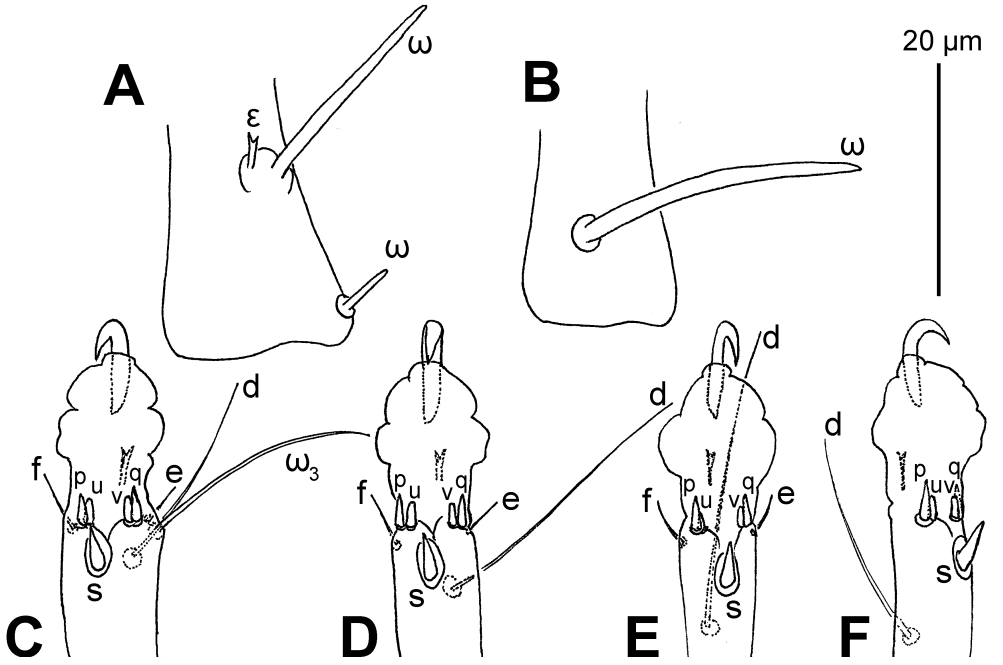

Figure 5 *Oulenziella africana* **sp. n.** (adult female). A, dorsal view of proximal tarsus I; B, dorsal view of proximal tarsus II; C, ventral view of apical tarsus I; D, ventral view of apical tarsus II; E, ventral view of apical tarsus III; F, ventral view of apical tarsus IV.

Egg

(Figure 7)

(n=5). Oblong in shape, nearly twice as long (105–116) as wide (53–61); shell of newly formed egg (Figure 7A) smooth; shell of fully developed egg (Figures 7B) ornamented with scattered punctations and surmounted longitudinally by a reticulated band forming an envelope which is wider at the ends (12–15) and narrower in middle parts (8–10). Five mites each was found inside an egg.

Etymology

The species name *africana* refers to the origin of this species in Africa.

Biology

Digested spores of *Penicillium* sp. (Eurotiales: Trichocomaceae) and fragmented mite body parts were found in the food boli (Figures 7C–E), suggesting that *O. africana* **sp. n.** is likely to be detritivores. The mite solenidion and setae in the food boli (Figure 7D), are possibly from the shed exoskeletons of members of the mite population.

Remarks

This species can be readily distinguished from the known species by the following key.

Key to adult females of *Oulenziella*

1. Genus I with solenidion σ'' 3–4× as long as σ'; idiosomal seta h_2 4–7× as long as h_1 2
— Genus I with σ'' 6–10× as long as σ'; h_2 12–15× as long as h_1 . . . . . *O. longiseta* Barbosa and Moraes

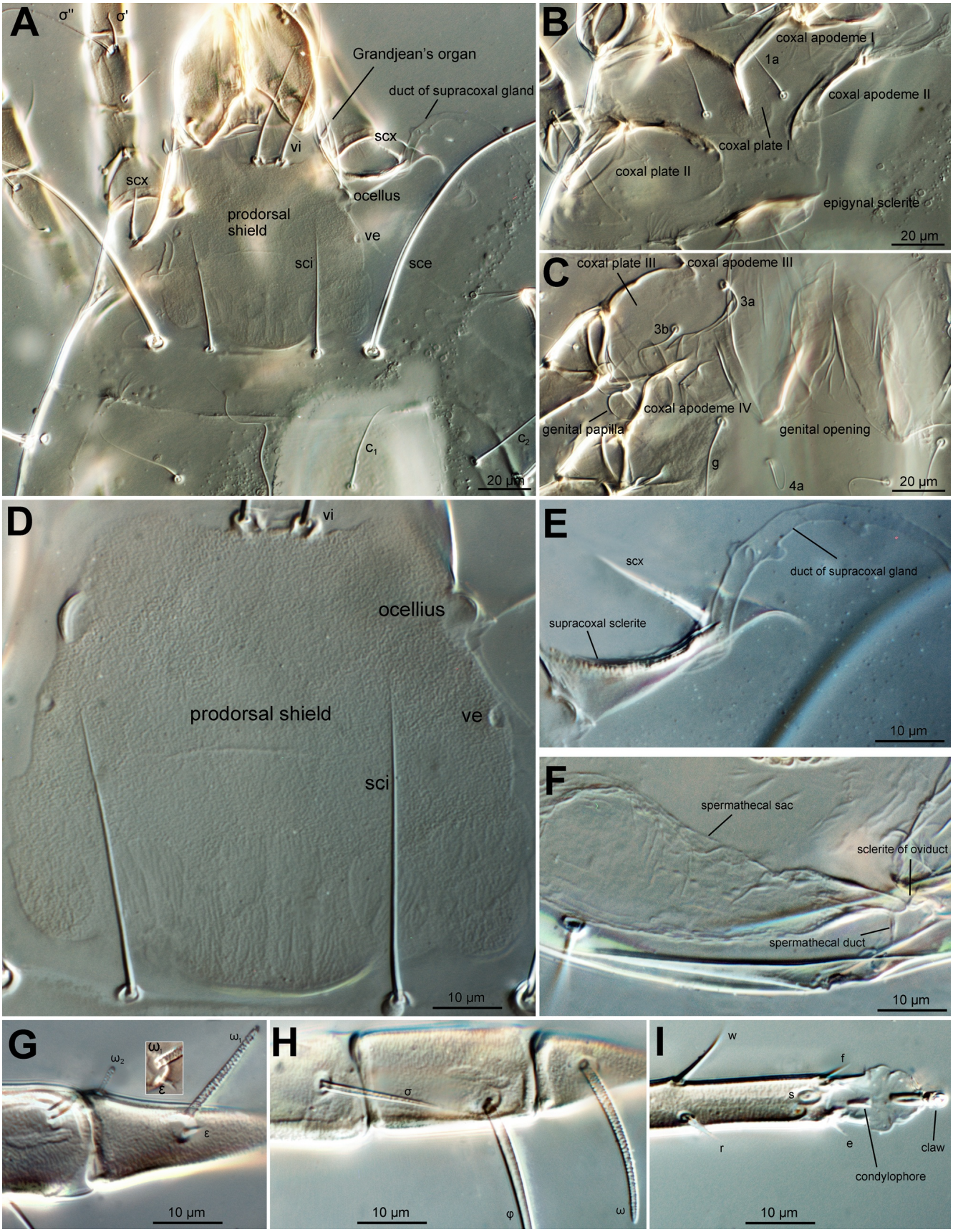

Figure 6 *Oulenziella africana* **sp. n.** (adult female). A, anterior parts of dorsal idiosoma; B, leg coxae I–II; C, leg coxae III–IV and genital opening; D, prodorsal shield; E, supracoxal sclerite, supracoxal seta *scx* and duct of supracoxal gland; F, copulatory opening and spermatheca; G, dorsal view of apical tibia and proximal tarsus I; H, dorsal view of apical genu, tibia and proximal tarsus II; I, apical ventral view of tarsus III.

2. Idiosomal seta e_1 about as long as or slightly longer than e_2 . . . . . *O. bakeri* (Hughes)
— Idiosomal seta e_1 2.6–3.4× as long as e_2 . . . . . *O. africana* Fan and Faraji, **sp. n.**

Oulenziella bakeri (Hughes, 1962)

(Table 2)

New record for Kenya.

Material examined

One adult female, ex mango tree, five km west of Thika, Kenya, 23 Nov. 2016, by H. Wainwright.

Oulenziella bakeri is characterized by having idiosomal setae *sce* 3.5–4.4× as long as *sci*, c_p 3.1–4.5× as long as c_1, e_1 as long as or slightly longer than d_1, e_1 0.9–1.5× as long as

Table 1 Measurements of the adult females of *O. africana* **sp. n.** (n=8).

	Holotype	Range	Mean	SE
Idiosoma-L	334	322–399	349	8.15
Idiosoma-W	226	191–239	222	5.32
Dorsal shield-L	71	70–78	73	0.96
Dorsal shield-W	78	69–83	76	1.63
vi	59	59–73	65	1.56
sci	51	45–51	49	0.82
sci–sci	39	39–43	41	0.48
sci–sce	22	18–22	20	0.5
sce	198	181–201	190	2.75
scx	20	19–22	20	0.35
c_1	34	34–43	40	1.19
c_1–c_1	65	57–70	64	1.38
c_1–d_1	37	37–51	45	1.84
c_2	49	7–51	49	0.41
c_p	148	168–196	181	5.52
c_3	48	48–53	50	0.63
d_1	61	56–80	68	3.02
d_1–d_1	54	45–59	54	1.59
d_1–e_1	56	47–70	59	2.3
d_2	53	53–61	57	1.11
e_1	157	131–184	158	7.24
e_1–e_1	59	57–75	66	2.1
e_2	47	46–54	51	1.01
f_2	39	38–43	40	1.13
h_1	73	61–73	66	1.55
h_2	284	256–324	285	7.95
1a	32	31–40	33	1.06
3a	31	30–35	33	0.68
3b	30	27–30	29	0.38
g	46	42–50	46	0.91
4a	29	24–29	27	0.73
ps_3	35	35–41	37	0.98
ps_2	38	38–46	41	1.04
ps_1	188	174–220	202	5.93
Leg I	172	166–184	172	2.81
vF I	39	38–45	41	1
cG I	29	23–30	28	0.88
mG I	34	28–37	31	1.1
σ′ I	15	13–16	15	0.37
σ″ I	53	53–63	56	1.17
gT I	19	16–20	19	0.42
hT I	19	16–24	19	0.96
Φ I	92	86–96	93	1.16
ω_1 I	19	18–20	19	0.26
ω_2 I	5	5–6	5	0.13
ω_3 I	21	20–23	21	0.38
ε I	3	3–3.5	3	0.06
la I	18	17–20	18	0.35
ra I	16	14–17	16	0.37
wa I	34	34–43	38	1.1
d I	23	20–26	24	0.67
e I	4	3–4	4	0.19
f I	5	4–6	5	0.13
Leg II	167	159–183	168	2.59
vF II	46	42–47	44	0.68
cG II	19	19–23	21	0.53
mG II	23	19–26	22	0.77
σ II	19	17–19	18	0.35
gT II	21	17–21	19	0.53
hT II	19	18–23	20	0.84
Φ II	109	99–113	105	1.63
ω II	26	23–26	25	0.33
la II	16	15–19	17	0.44
ra II	13	13–19	15	0.8
wa II	41	40–46	42	0.74
d II	24	24–40	31	1.72
e II	4	3–4	4	0.16
f II	5	5–6	5	0.13
Leg III	184	169–189	179	2.53
σ III	5	5–6.5	5	0.22
kT III	27	22–29	26	0.75
Φ III	101	95–101	98	0.75
r III	16	15–21	17	0.76
w III	24	24–32	28	0.88
d III	32	27–39	33	1.18
e III	4	3–4	4	0.13
f III	5	4–5	5	0.16
Leg IV	206	196–207	203	1.5
kT IV	28	22–32	27	1.06
Φ IV	108	108–121	112	1.93
r IV	21	16–24	19	0.96
w IV	29	28–33	31	0.63
d IV	28	27–42	38	2.42

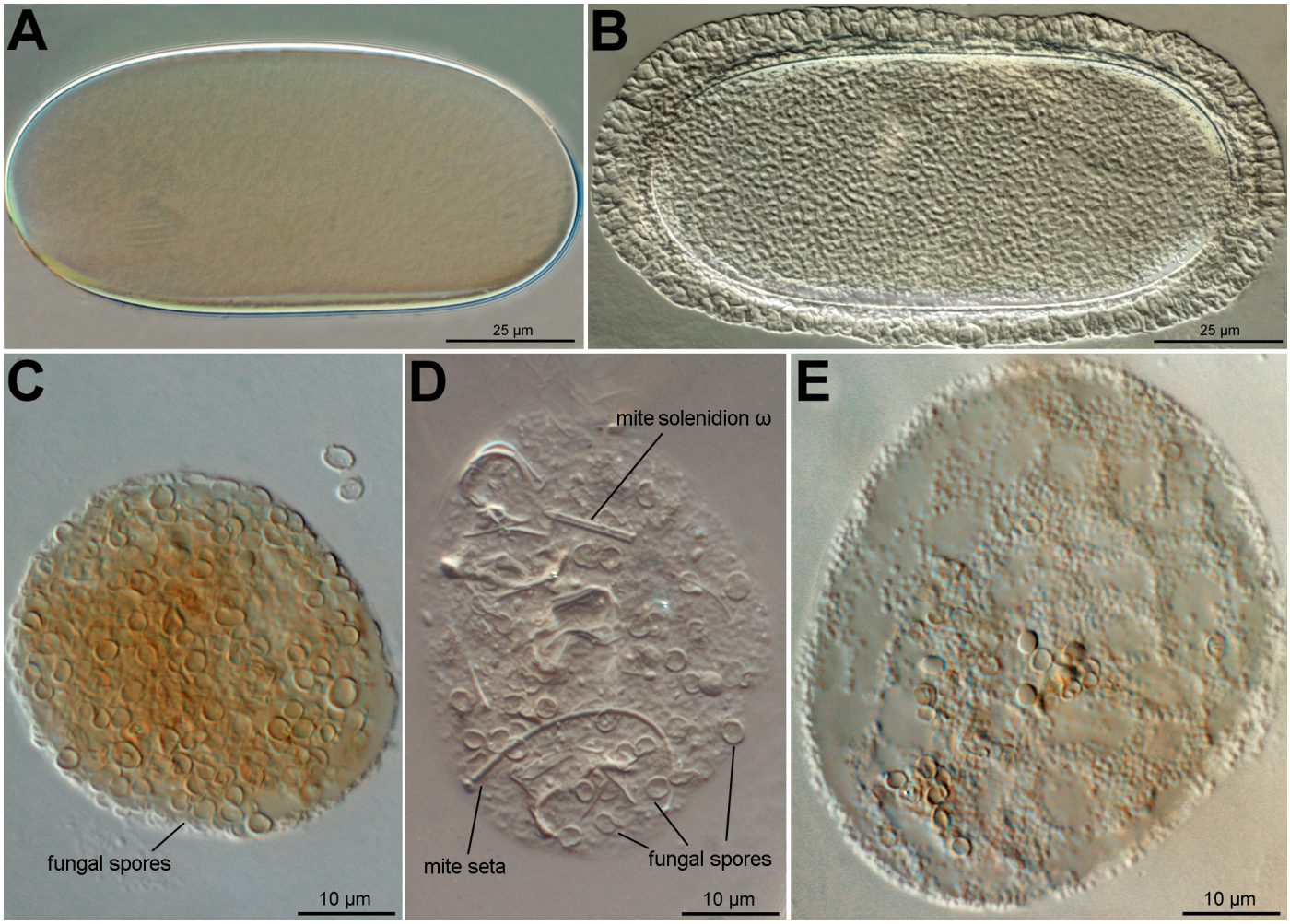

Figure 7 *Oulenziella africana* **sp. n.** A, newly formed egg; B, fully developed egg; C–E, food boli.

e_2, h_2 4.7–6.9× as long as h_1, and genu I with solenidion σ'' 3.2–4.0× as long as σ' in adult females. The Kenyan specimen is consistent with all these key characters of females of *O. bakeri* described by Fan *et al.* (2015; 2020). Measurements on the adult female collected from Kenya are presented in Table 2.

Redefinition of *Oulenziella* Fan and Zhang, 2015

Due to the recent research (Barbosa & Moraes 2021; Fan *et al.* 2021; this work), a redefinition of the genus *Oulenziella* is presented below.

FEMALE. Ocelli strongly bulging, positioned on lateral margins of prodorsal shield in a position slightly posterior to *vi*; setae *sce* from nearly 3× to more than 8× as long as *sci*; supracoxal setae *scx* slender and scarcely barbed; hysterosomal setae e_1 1.0–10.0× as long as e_2; h_2 from nearly 4.0× to more than 12× as long as h_1; each tarsus (excluding pretarsus) more than 4× as long as its basal width. Genu I with solenidion σ'' 3.0–9.5× as long as σ'; σ on genu III small, usually not extending beyond anterior rim of segment; seta *d* on tarsi III and IV positioned at level of apical 1/8 to 1/6 of segment. Chaetotaxy and solenidiotaxy of legs I–IV: trochanter 1, 1, 1, 0; femora 1, 1, 0, 0; genua 2 + 2σ, 2 + 1σ, 1σ, 0; tibiae 2 + 1φ, 2 + 1φ, 1 + 1φ, 1 + 1φ; tarsi I with 4 long setae (*wa*, *ra*, *la* and *d*), 2 small apical setae (*f* and *e*) + 1 subterminal ventral spine (*s*) + 4 terminal ventral spines (*u*, *p*, *v* and *q*) + ω_1 + ω_2 + ω_3 + 1ε; tarsus II similar

Table 2 Measurements of *O. bakeri* (adult female) collected from Kenya (n=1).

Item	Measurements	Item	Measurements	Item	Measurements	Item	Measurements
Idiosoma-L	314	Leg I	159	Leg II	159	Leg III	166
Idiosoma-W	173	*vF* I	46	*vF* II	45	*σ* III	3.5
Dorsal shield-L	66	*cG* I	30	*cG* II	18	*kT* III	28
Dorsal shield-W	67	*mG* I	26	*mG* II	26	*φ* III	108
vi	50	*σ′* I	15	*σ* II	15	*r* III	14
sci	41	*σ″* I	51	*gT* II	17	*w* III	21
sci–sci	35	*gT* I	18	*hT* II	20	*d* III	24
sci–sce	16	*hT* I	23	*φ* II	98	*e* III	4
sce	169	*φ* I	91	*ω* II	25	*f* III	3
scx	18	ω_1 I	18	*la* II	15	*s* III	4
c_1	32	ω_2 I	4	*ra* II	16	*p* III	3
c_1–c_1	52	ω_3 I	22	*wa* II	34	*q* III	2.5
c_1–d_1	41	*ε* I	3	*d* II	31	*u* & *v* III	1.5
c_2	41	*la* I	19	*e* II	4	Leg IV	192
c_p	142	*ra* I	17	*f* II	3	*kT* IV	31
c_3	45	*wa* I	36	*s* II	4	*φ* IV	104
d_1	50	*d* I	22	*p* & *q* II	2.5	*r* IV	17
d_1–d_1	45	*e* I	4	*u* & *v* II	1.5	*w* IV	31
d_1–e_1	49	*f* I	3			*d* IV	35
d_2	46	*s* I	4			*s* IV	5
e_1	51	*p* & *q* I	2.5			*p* & *q* IV	3
e_1–e_1	39	*u* & *v* I	2			*u* & *v* IV	2
e_2	38						
f_2	32						
h_1	40						
h_2	233						
1a	34						
3a	31						
3b	30						
g	51						
4a	30						
ps_3	35						
ps_2	34						
ps_1	163						

to tarsus I but without ω_2, ω_3 and ε; tarsus III with 3 long seta (*w*, *r* and *d*), 2 small apical setae (*f* and *e*) + 1 subterminal ventral spine (*s*) + 4 terminal ventral spines (*u*, *p*, *v* and *q*); tarsus IV with 3 long seta (*w*, *r* and *d*) + 1 subterminal ventral spine (*s*) + 2 terminal ventral spines (*u*, *p*, *v* and *q*).

MALE. Similar to female but genital opening with an aedeagus situated between coxae IV; sclerite anterior to genital opening contiguous with medial part of apodemes IV; ventral setae *3a* absent; genital setae tiny, about as long as basal alveolus; tarsi I and II (excluding pretarsi) less than 3× as long as their basal width, their apicoventral portion modified into suckers; subterminal ventral spine (*s*) of tarsi I–II indiscernible; terminal ventral spines p and q of tarsi I and II blunt.

Oulenziinae currently comprises five genera. A key to genera of the subfamily (adult females) is presented as follows (Modified from Fan *et al.* 2015).

Key to genera of the subfamily Oulenziinae (adult females)

1. Prodorsal shield with a pair of ocelli on its anterolateral margins 2
— Prodorsal shield without ocelli 4

2. Tibiae I and II each with one seta (*gT*); tibia IV without ventral seta; tarsus II without setae la or *ra*, tarsus III without seta *w* . . . . . *Oulenzia* Radford, 1950
— Tibiae I and II each with 2 setae (*gT* and *hT*); tibia IV with a ventral seta (*kT*); tarsus II with setae *la* and *ra*, tarsus III with seta *w* 3

3. Genu I with σ'' more than 3× as long as σ'; ocellus with lateral margin strongly bulging . . . . . *Oulenziella* Fan and Zhang, 2015
— Genu I with σ'': σ'=1 to 2; ocellus with lateral margin slightly recurved . . . . . *Procalvolia* Fain, 1971

4. Spermathecal duct long, forming 5–6 loops . . . . . *Psylloglyphus* Fain, 1966
— Spermathecal duct short, not forming loops . . . . . *Acalvolia* Fain, 1971

Discussion

There are relatively few morphological characters for identifying species of *Oulenziella* based on current knowledge. Useful characters include the comparative lengths of dorsal idiosomal setae (i.e., e_1: e_2, h_2: h_1) and the comparative length of solenidia σ'' and σ' of genu I. The male genitalia of *O. bakeri* and *O. longiseta* don't exhibit significant variability and is not considered a key character here. The structure of the female genitalia such as the base of spermatheca is potentially a useful character to separate *O. longiseta* from the other two species.

It is worth noting that the famulus (ε) on tarsus I of *O. africana* **sp. n.** is apically cleft (Figures 5A and 6G) though it is not an obvious feature. We re-examined ten females and ten males of *O. bakeri* described by Fan *et al.* (2020) and found that ε is cleft but can be inapparent when it is not in the correct visual position. We also examined six females and two males of *Acalvolia americana* Fan, George and Kumarasinghe (Fan *et al.* 2010), an undescribed female of *Oulenzia* from Malaysia (Fan *et al.* 2012), and four adult females of *Czenspinskia transversostriata* (Oudemans) collected in Turkey. Solenidion ε is generally conical with an obscure subapical barb on these specimens. Further observation on species of other genera needs to be done to determine whether this is a generic character for *Oulenziella*.

Barbosa and Moraes (2020) incorrectly listed '*Oulenzia arboricola*: Baker & Warton, 1952, 342; Meyer & Rodriguez 1966: 24; Fan *et al.* 2012: 334.' under the species *Oulenzia arboricola* (Oudemans, 1928)' which should be removed from page 1042 of Barbosa and Moraes (2020). However, the authors did correctly treat *Oulenzia arboricola* sensu Baker & Warton, 1952 as *Oulenziella bakeri* (Hughes, 1962) on page 1043 (Barbosa & Moraes 2020). We confirm that, as in *O. bakeri*, the apicoventral portion of tarsi I and II of male *O. longiseta* is modified into a tarsal sucker and seta *s* is indiscernible based on images kindly provided by Barbosa and Moraes on 7 July 2021.

It is possible that mites of *Oulenziella* don't have a heteromorphic deutonymphal stage as discussed in Fan *et al.* (2020) who studied more than one thousand specimens of all life stages of *O. bakeri* in the collection of the Plant Health and Environment Laboratory, New Zealand.

Acknowledgements

We would like to thank Dr Henry Wainwright (Real IPM Company Ltd. Madaraka, Thika, Kenya) for providing us the mite material described in this study, Drs Gilberto J. de Moraes and Marina F. C. Barbosa (Universidade de São Paulo, Brazil) for re-examining type specimens of *Oulenziella longiseta*, and Dr W. Ho (Plant Health & Environment Laboratory, Ministry for Primary Industries) for identifying the fungus in the mite guts. The senior author is indebted to Drs Sherly George and Lalith Kumarasinghe and colleagues in Ministry for Primary Industries, New Zealand for encouraging the senior author's research.

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