

On new species of *Microdiores* (Araneae, Zodariidae) from Central and East Africa

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Abstract

The distribution of the genus *Microdiores* Jocqué, 1987, so far only known from East Africa, is extended to Central Africa with the description of the new species, *Microdiores rwegura* sp. n. (♂) and *M. violaceus* sp. n. (♂♀), both from the Kibira National Park in Burundi. A third new species, *M. aurantioviolaceus* (♂), from northern Tanzania is described. The status of the genus is confirmed and a key to the males of the species is provided.

Keywords

Fromontane forest, Araneae, *Dumadiores*, Kibira National Park, *Microdiores*, Zodariidae

Introduction

Our knowledge on the genus *Microdiores* Jocqué, 1987 was so far restricted to a single species, *M. chowo* Jocqué, 1987, from Malawi (Jocqué 1987, 1991; Platnick 2009). As the genus was based on one species only, its status has been doubtful. In the original publication, it was stated that more species from eastern and central Africa were known

to the author (Dippenaar-Schoeman and Jocqué, 1997). *Microdiores rwegura* sp. n. and *M. violaceus* sp. n., collected in the Kibira afro-montane forest in Burundi, extend the known distribution area of *Microdiores* to Central Africa. A fourth species, *Microdiores aurantioviolaceus* sp. n., from Tanzania is also described here, and the status and definition of *Microdiores* are confirmed.

Material and methods

The specimens were obtained from the collection obtained by the first author in the afro-montane forest of Kibira and from fieldwork in the Mkomazi Game Reserve in Tanzania. The primary types and some paratypes are deposited at MRAC and some paratypes are retained at INECN.

The epigynes and male palps were observed and drawn with a stereomicroscope Zeiss Stemi 2000. Specimens were measured with a WILD M 10 stereomicroscope.

The female epigyne was detached from the abdomen, cleared with methylsalicylate and temporarily mounted for examination. It was photographed with a Leica SMLB microscope and subject to automontage with the Syncroscopy software. All measurements are in mm. Coordinates are decimal.

Abbreviations

ALE	anterior lateral eyes
AME	anterior median eyes
AW	anterior width
d	dorsal
dl	dorsolateral
F	femur
INECN	Institut National pour l'Environnement et la Conservation de la Nature (Bujumbura, Burundi)
L	length
MA	median apophysis
MRAC	Musée Royal de l'Afrique Centrale (Tervuren, Belgium)
Mt	metatarsus
NP	National Parc
P	patella
pl	prolateral
PLE	posterior lateral eyes
PME	posterior median eyes
rl	retrolateral
t	tarsus
T	tibia
v	ventral

Taxonomy

Family Zodariidae

Subfamily Zodariinae

Genus *Microdiores* Jocqué, 1987

Diagnosis. Small Zodariidae (1.5 -2.5 mm) with large AME; carapace devoid of pores; femoral organ with barbed hairs; embolus curved and tapered, with rounded cross-section, originating from well delimited, posterior part of tegulum; epigyne with large adjacent spermathecae.

Microdiores aurantioviolaceus sp. n.

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Figures 1A, B

Material examined. Holotype male. TANZANIA: Mkomazi Game Reserve, 5 km North of Ibaya, 9–10.VIII.1993, pitfalls, short grass and bushes, Ritchie M. and Makusi R. (MRAC 215708).

Diagnosis. The male of this species is recognized by the broad, curved retrolateral tibial apophysis with a large seta pointing outwards and the long embolus with broad base, its tip supported by the broad MA with a short triangular prong. In *M. violaceus* the MA has two short triangular prongs whereas in *M. rwegura* the tip is rounded.

Etymology. The specific name “*aurantioviolaceus*”, refers to the colour of the carapace and the abdomen respectively orange and sepia.

Description. Male (holotype). Total length 1.72, carapace 0.76 long and 0.60 wide. **Carapace** orange, with central violet spot; with a few long bristles in longitudinal row. **Eyes:** ocular area dark, AME 0.08, ALE 0.06, PME 0.06, PLE 0.06 PME-PME 0.08; AME almost touching. **Clypeus** with tuft of bristles. **Chelicerae** yellowish orange. **Sternum** pale orange, margin darker orange. **Legs** orange, with short hairs; spineless. **Abdomen**, Oval; dorsum sepia with some poorly marked pale chevrons; venter pale yellow. **Palp** (figs 1A, B): cymbium with distal spine and sub-distal row of four modified setae; tibia with retrolateral apophysis relatively broad, curved, rounded at the tip, and very broad ventral apophysis with broadly rounded tip and large spine pointing outwards; embolus originating on posterior part of tegulum, its base pointing forward to distal tip of tegulum, broadly curved towards MA.

Leg measurements:

Leg	F	P	T	Mt	t	Total
I	0.62	0.22	0.52	0.56	0.44	4.82
II	0.50	0.20	0.40	0.42	0.38	3.97
III	0.50	0.20	0.30	0.44	0.38	3.92
IV	0.70	0.20	0.58	0.66	0.40	5.42

Female Unknown

Distribution. Known only from the type locality.

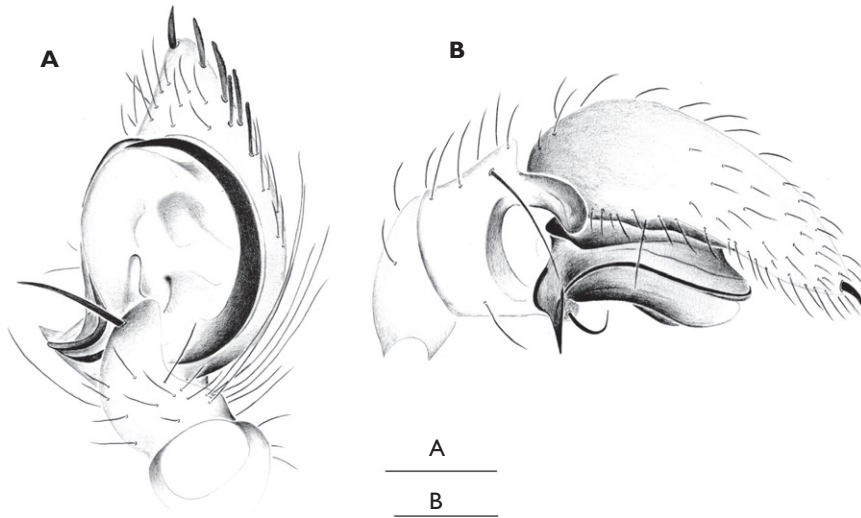


Figure 1A, B. *Microdiores aurantioviolaceus* sp. n. **A** Male palp, ventral view **B** Male palp, retrolateral view. (Scale bars: 0.1mm)

***Microdiores rwegura* sp. n.**

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Figures 2A, B

Material examined. Holotype male. BURUNDI: Zone of “Parc National de la Kibira, Forêt de Rwegura”, 02.89891°S, 029.50405°E, site 1, tea plantation adjacent to NP, 30.X.2004, 1970m, pitfalls, B. Nzigidahera (MRAC 227565).

Paratypes: BURUNDI: 1♂: 30.I.2004, same data as holotype (INECN); 1♂: 30.IX.2004 same data as holotype (INECN); 1♂: 02.89565°S, 029.50345°E, site 2, 30.I.2004, forest with *Polyscias fulva* and *Macaranga neomildbraediana*, 2120 m (INECN); 1♂: 02.88562°S, 029.50221°E, site 3, 14.VI.2005, forest of *Polyscias fulva* and *Hagenia abyssinica*, 2160 m (MRAC 227566).

Diagnosis. The male of this species is recognized by the shape of the embolus which is long and curved, with a very slender distal part supported by a complex MA which is clearly different from those in *M. violaceus* and *M. aurantioviolaceus*; in these species the end of the embolus is supported by the short triangular prong at the tip of the MA. The latter two species also differ in their violet carapace.

Etymology. The specific name “*rwegura*” is a noun in apposition taken from the type locality.

Description. Male (holotype). Total length 2.00, carapace 0.90 long and 0.72 wide. **Carapace** orange. **Eyes**, AME very large, round; anterior eye row straight, posterior row procurved; AME: 0.10; ALE: 0.06; PME: 0.04; PLE: 0.04; AME-AME: 0.02; AME-ALE: 0.00; PME-PME: 0.06; PME-PLE: 0.02. **Chelicerae** orange. **Sternum** yellow.

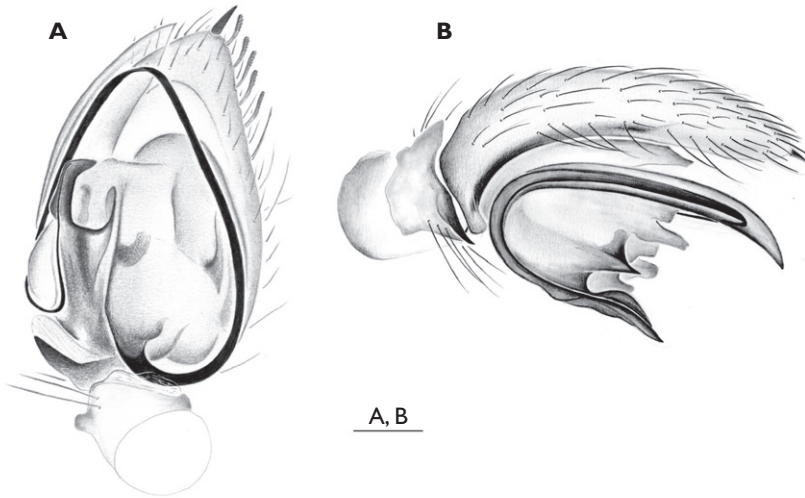


Figure 2A, B. *Microdiores rwegura* sp. n. **A** Male palp, ventral view **B** Male palp, retrolateral view. (Scale bars: 0.1mm)

lowish orange with dark orange margins; some setae along margin. **Labium** yellowish orange. **Legs** yellowish orange; with some short hairs, spineless. **Abdomen** pale yellowish orange dorsally and ventrally. **Spinnerets** pale yellowish orange. **Palp** (fig. 2A, B), cymbium with distal spine and sub-distal row of five modified setae; tibial apophysis short, sharp, pointing downward; embolus originating on posterior part of tegulum; its base pointing backward, thence running forward to tip of cymbium from where it is supported by longitudinal prong of complex MA.

Leg measurements:

Leg	F	P	T	Mt	t	Total
I	0.70	0.24	0.60	0.70	0.54	2.78
II	0.60	0.24	0.44	0.50	0.48	2.26
III	0.60	0.22	0.42	0.54	0.40	2.18
IV	0.80	0.22	0.60	0.80	0.50	2.92

Female Unknown

Variation. Carapace colour may vary from bright orange to yellowish orange

Distribution. Known only from the type locality.

***Microdiores violaceus* sp. n.**

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Figs 3A–C, 4

Material examined. Holotype male. BURUNDI: Parc National de la Kibira, Rwegura, Mt Musumba, 02.86455°S, 029.50427° E, site 4, forest with *Macaranga ne-*

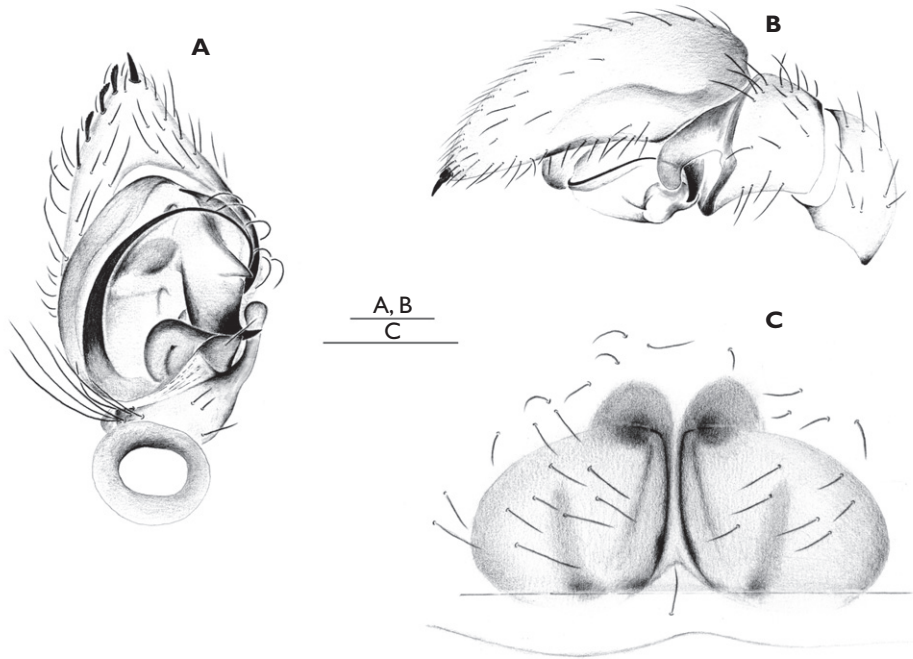


Figure 3A–C. *Microdiores violaceus* sp. n. **A** Male palp, ventral view **B** Male palp, retrolateral view; **C** epigyne, ventral view. (Scale bars: 0.1mm)

omildbraediana and *Polyscias fulva*, 10.IX.2008, 2352m, pitfalls, Nzigidahera Benoît (MRAC 226800).

Paratypes. All paratypes from BURUNDI, Zone of Kibira National Park, Rwegura, Mt Musumba, pitfalls, B. Nzigidahera, 02.86435°S, 029.49540° E, site 7, tea plantation adjacent to NP, 2100 m; 1♂: 25.VIII.2008 (MRAC 226799); 1♂: 25.XII.2008 (MRAC 226801); 1♂: 10.I.2008 (INECN); 1♂: 02.87149°S, 029.49641° E, site 3, 10.XI.2008, forest with *Hagenia abyssinica*, 2444 m (INECN); 6♂: 25.VIII.2008 (INECN); 1♂: 02.87696°S, 029.49709° E, site 1, 25.V.2008, mountain heather with *Philippia benguelensis*, 2650 m (INECN).

Diagnosis. The male of this species is recognized by the broad tibial apophysis with a rounded down curved tip and by the long embolus with broad base, its tip supported by the broad median apophysis with two short triangular prongs. The female is characterized by broadly oval spermathecae which are flask shaped in *M. chowo*.

Etymology. The specific name “*violaceus*”, refers to the colour of the abdomen which is violet.

Description. Male (holotype). Total length 1.80, carapace 0.90 long and 0.70 wide. **Carapace**, sepia with greyish brown, with slightly darker radiating striae. **Eyes** AME very large, round, dark; others small, pale; anterior eye row straight, posterior eye row procurved; AME: 0.08; ALE: 0.06; PME: 0.06; PLE: 0.06; AME-AME: 0.02; AME-ALE: 0.00; PME-

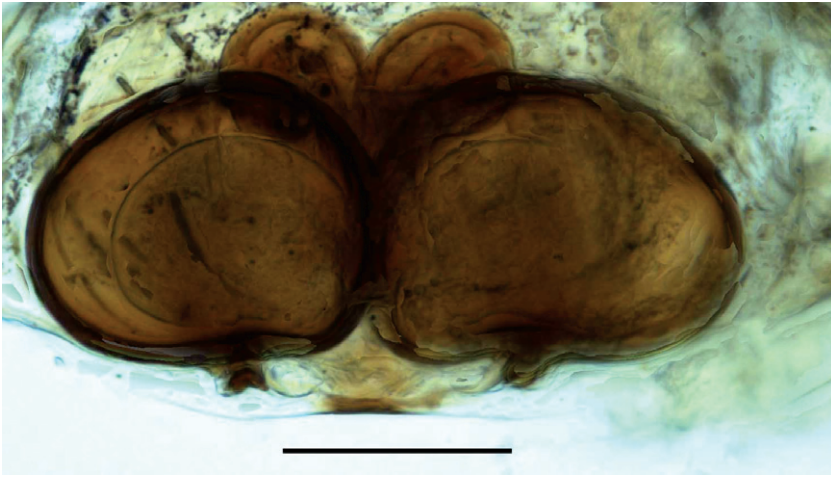


Figure 4. *Microdiores violaceus* sp. n. Epigyne, cleared, dorsal view (scale bar: 0.1 mm).

PME: 0.08; PME-PLE: 0.02. **Chelicerae** yellowish brown. **Sternum** greyish brown. **Labium** yellowish brown, triangular. **Legs** yellowish brown, with many short hairs. **Abdomen**, Dorsum oval, sepia with some poorly marked pale chevrons; venter pale. **Spinnerets** pale. **Palp** (fig. 3AB): cymbium with distal spine and sub-distal row of three modified setae; tibial apophysis broad, with parallel sides pointing obliquely downward, with broadly rounded tip; embolus originating on posterior part of tegulum; its base pointing forward to distal tip of tegulum, broadly curved towards MA with two short, triangular prongs.

Leg measurements:

Leg	F	P	T	Mt	t	Total
I	0.68	0.24	0.52	0.52	0.50	2.46
II	0.60	0.22	0.44	0.41	0.40	2.07
III	0.60	0.24	0.40	0.46	0.40	2.10
IV	0.78	0.24	0.60	0.76	0.50	2.88

Female paratype (from site 3). Colour pattern similar to male. Total length 2.36, **Carapace** 0.90 long and 0.70 wide. **Eyes**, AME: 0.08; ALE: 0.06; PME: 0.06; PLE: 0.06; AME-AME: 0.02; AME-ALE: 0.00; PME-PME: 0.08; PME-PLE: 0.02.

Leg measurements:

Leg	F	P	T	Mt	t	Total
I	0.60	0.24	0.50	0.48	0.40	2.22
II	0.50	0.20	0.50	0.40	0.40	2.00
III	0.54	0.20	0.40	0.40	0.40	1.94
IV	0.70	0.24	0.50	0.70	0.52	2.66

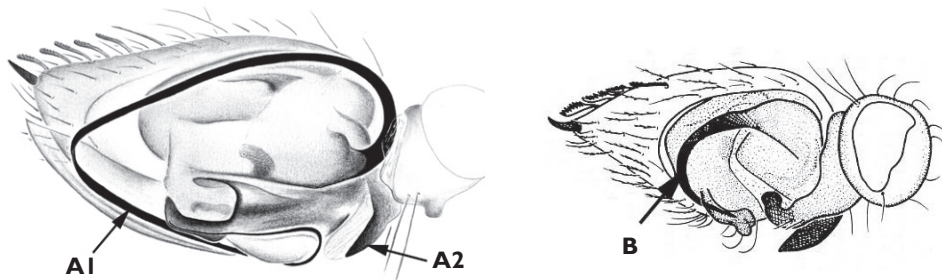
Epigyne (figs 3C, 4) with a clearly sclerotised part on either side of the dark median longitudinal lines; posterior margin poorly sclerotised; spermathecae oval, adjacent.

Variation. Carapace colour may vary from sepia to greyish brown.

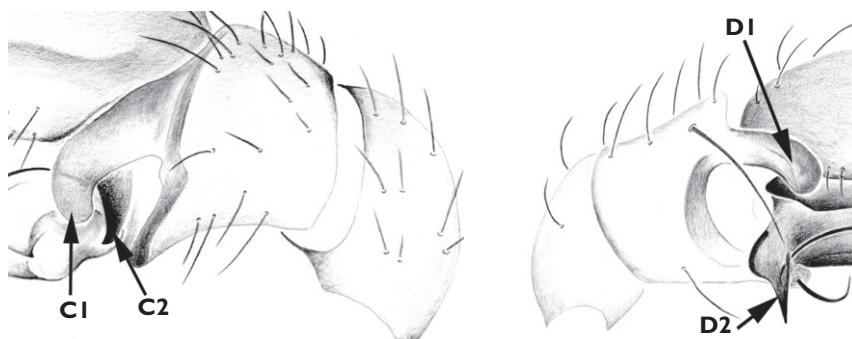
Distribution. Known only from the type locality.

Key to the species (males only)

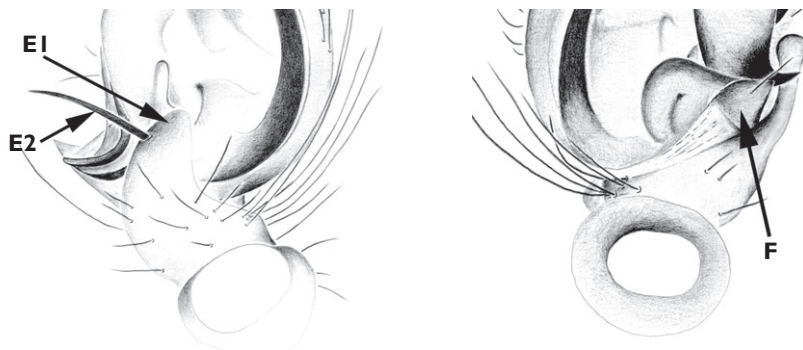
- 1. Embolus long, curved back and reaching RTA (A1) 2
- Embolus shorter, curved back but not reaching RTA (B) *M. chowo*



- 2. RTA in retrolateral view with large, rounded, downcurved tip (C1, D1); MA with sharp downpointing extremity at proximal end (C2, D2) 3
- RTA in retrolateral view of different shape (A2); MA without downpointing tip *M. rwegura*



- 3. Ventral tibial apophysis with rounded tip (E1), provided with outward pointing macroseta (E2) *M. aurantioviolaceus*
- Ventral tibial apophysis with truncated tip (F); without macroseta *M. violaceus*



Discussion

Microdiores is a poorly known genus that has remained monotypic since its description. The present study confirms the validity of its diagnosis which is extended with more characters on the base of the newly described species. An important diagnostic character differentiating *Dusmadiores* Jocqué, 1987 from *Microdiores* is the absence of carapace pores in the latter. In *Microdiores* the embolus is slender with a rounded cross-section, whereas it is flat and broad in the closely related *Dusmadiores*. The epigyne of the two species of *Microdiores* for which females are known (*M. chowo* and *M. violaceus* sp. n.), is very simple and the spermathecae are large and adjacent whereas they are far apart in *Dusmadiores*.

Spiders were collected intensively in the forest ecosystems of western Burundi during several years (2003–2005–2008). Yet, the two species of *Microdiores* were so far only found in montane forest of the Kibira National Park. They have been collected again in the tea plantation in the adjacent zone of this protected area. In that forest, *Microdiores rwegura* sp. n. appears to occupy a small altitudinal gradient between 1970 and 2160m. *Microdiores violaceus* sp. n. on the other hand, occupies an extensive altitudinal gradient between 2100 to 2650 m and colonizes the heather vegetation at high altitude. Taking into account the results of Jocqué (1987), who found *M. chowo* in high altitude grassland in Malawi, *Microdiores* occupies a large range of habitats in Central and East Africa from dryish lowland savanna, to wet montane forest.

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