



## First record of the rotundabaloghid mites (Acari: Mesostigmata) in Sierra Leone with the description of a new species

Jenő KONTSCHÁN 

Plant Protection Institute, Centre for Agricultural Research, Hungarian Academy of Sciences, H - 1525 Budapest, P.O. Box 102, Hungary

e-mail: [kontschan.jeno@agrar.mta.hu](mailto:kontschan.jeno@agrar.mta.hu)

Received: 17 December 2018

Accepted: 8 January 2019

Available online: 29 January 2019

**ABSTRACT:** The first record of the rotundabaloghid mites in Sierra Leone is presented here. A new species, *Rotundabaloghia (Circobaloghia) leonensis* sp. nov., is described based on two females and one male specimen. The new species differs from the other Afrotropical roundabaloghid mites in following character combination: the setae *V7* and *V8* pilose, female genital shield and the ventral shields are ornamented by irregular pits. This character combination is unknown within the African rotundabaloghids.

**Keywords:** Soil mites, Uropodina, taxonomy, West-Africa.

**Zoobank:** <http://zoobank.org/935C2409-41C7-4FC7-8BED-63D8C047665F>

### INTRODUCTION

The rotundabaloghid mites are the better-known group of the Uropodina with more than 100 described and named species. The rotundabaloghid species are divided into two subfamilies, four genera and four subgenera (Kontschán, 2010). The largest subgenus (*Rotundabaloghia (Circobaloghia)* Kontschán, 2010) has the largest distributional pattern, *Circobaloghia* species occur in Neotropical, Afrotropical and Oriental regions.

The West-African sub-region of the Ethiopian realm is the most scarcely investigated part of the world from rotundabaloghid mite point of view. Rotundabaloghid mites from this sub-region are presented only from Cameroon, Ghana, Republic of Congo and Ivory Coast (Kontschán, 2010). Sierra Leone is one of unknown country of West Africa from Uropodina point of view. Till today no Uropodina records are published from this country. In the present paper, a new rotundabaloghid mite is described.

This work is a new part of the study of African Uropodina mites (Kontschán and Stary, 2014, 2015) which is based on the investigation of the Arachnida collection of the Natural History Museum in Geneva.

### MATERIAL AND METHODS

Specimens of the new species were cleared in lactic acid for a week. The drawings were made with the aid of a drawing tube of Leica 1000 scientific microscope. All specimens are stored in ethanol and deposited in the Natural History Museum in Geneva, Switzerland (MHNG). The system and nomenclature of the ventral setation follow Kontschán (2010). Abbreviations: *St* = sternal setae, *ad* = adanal setae, *V* = ventral setae. All measurements

and the scales in the figures are given in micrometres ( $\mu\text{m}$ ).

### RESULTS

#### Taxonomy

*Rotundabaloghia (Circobaloghia) leonensis* sp. nov.

(Figs 1–8)

**Diagnosis.** Genital shield of female, sternal and the ventral shields of both gender ornamented by oval pits. Setae *V7* and *V8* as long as *V2* and *V6*, but *V7* and *V8* marginally pilose, *V2* and *V6* smooth.

**Material examined.** Holotype female from Sierra Leone, Guma, 500 m, 18 January 1979, coll. J. and S. Klapperich. Paratypes: One female and one male, collection data as in holotype.

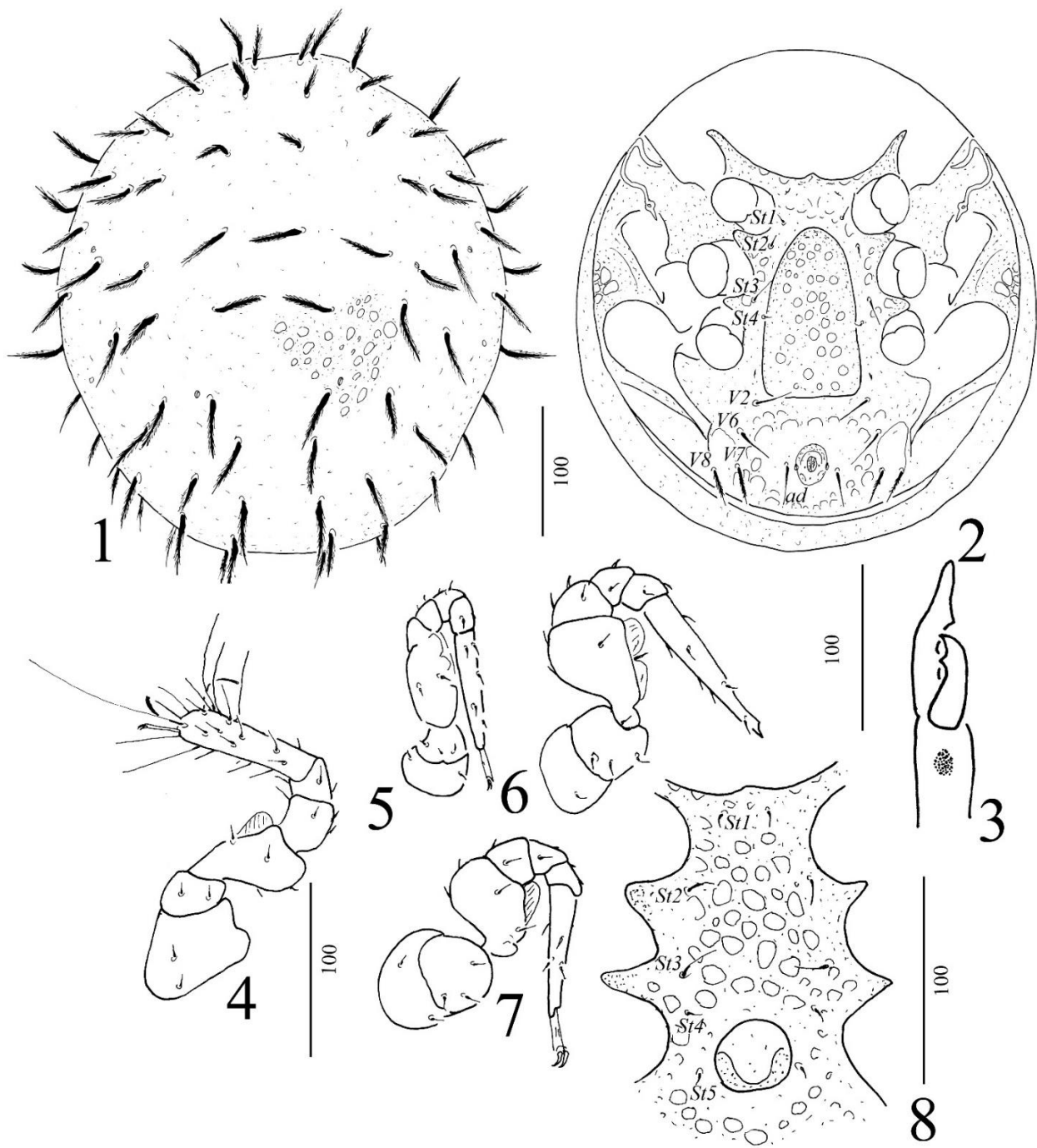
#### Description

*Female (n=2)*

Length of idiosoma 383–385, width 340–342. Shape circular, posterior margin rounded, colour reddish brown.

**Dorsal idiosoma** (Fig. 1). Marginal and dorsal shields fused. Dorsal setae basally curved, margins of all dorsal setae pilose (ca 35–42). Four pairs of pore-like organs situated on central and centrolateral areas of dorsal shield. Surface of dorsal shield covered by irregular pits (ca 4–11×5–13).

**Ventral idiosoma** (Fig. 2). Sternal shield covered by irregular pits. All sternal setae smooth and needle-like, *St1–St2* short (ca 7–9), *St3* long (ca 19–22), *St4* extreme short (ca 5–6). *St1* situated at level of central area of coxae II, *St2* at



**Figures 1-8.** *Rotundabaloghia (Circobaloghia) leonensis* sp. nov. Female, holotype. 1. Dorsal view of idiosoma. 2. Ventral view of idiosoma. 3. Lateral view of chelicera. 4. Leg I in lateral view. 5. Leg II in lateral view. 6. Leg III in lateral view. 7. Leg IV in lateral view. 8. Intercoxal area of paratype male.

level of anterior margin of coxae III, *St3* at level of posterior margin of coxae III, *St4* at level of central area of coxae IV. Ventral setae *V2*, *V6* and adanal setae (*ad*) smooth and needle-like (ca 27–30), *V7* and *V8* as long as *V2* and *V6* (ca 25–28), but marginally pilose. *V2* situated near basal line of genital shield, *V7* and *V8* situated at level of setae *ad*. *V6* situated at level of end of pedofossae IV. Setae *ad* placed lateral to anal opening. Ventral shield covered by irregular pits, but smooth around anal opening. One pair of lyriform fissures situated close to anterior margin of sternal shield, one pair close to basal edges of genital shield and one pair of poroids close to *ad*. Stigmata situated between coxae II and III. Peritremes with a short

straight poststigmatid part and a longer hook-shaped prestigmatid part. Genital shield wide, linguliform (130–135 long and 68–70 wide at base), without apical process. Surface of genital shield with irregular pits. Pedofossae deep, their surface smooth, separate furrows for tarsi IV present. Base of tritosternum narrow, vase-like, tritosternal laciniae smooth, subdivided into three smooth branches in its distal half.

*Gnathosoma.* Corniculi horn-like, internal malae smooth and as long as corniculi. Hypostomal setae (*h1*, *h2*, *h3* and *h4*) long (ca 9–13), smooth and needle-like. Apical part of epistome marginally pilose. Palp with smooth setae

except for one ventral serrate seta on palp trochanter. Fixed digit of chelicerae longer than movable digit and both digits bearing one central tooth. Internal sclerotized node present (Fig. 3).

*Legs* (Figs 4–7). All legs with ambulacral claws and smooth and needle-like setae, but the claws on first leg shorter than others. All femora bearing flap-like ventral processes. Leg I 235–240, leg II 210–225, leg III 225–234, leg IV 250–263.

*Male* ( $n=1$ )

Length of idiosoma 382 width 340.

*Dorsal idiosoma*. Ornamentation and chaetotaxy of dorsal shield as for female.

*Venteral idiosoma* (Fig. 8). Four pairs of sternal setae situated anterior to genital shield, *St1*, *St4* and *St5* short (ca 6–8 long), *St2* long (ca 12–13 long) and *St3* longer (ca 15–17 long), all sternal setae smooth and needle-like. Two pairs of lyriform fissures situated on sternal shield, first pair close to anterior margin of sternal shield, second pair close to anterior margin of genital shield. Surface of sternal shield with numerous irregular pits anterior to genital shield. Surface of ventral shield, and shape and size of ventral setae as in female. Genital shield oval (34×36) and situated between coxae IV.

Larva and nymphs unknown.

*Etymology*. The name of the new species refers to the country where this species was collected.

*Remarks*. Till today 14 species are described from the West-African sub-region of the Ethiopian realm (Kontschán, 2010). Setae *V7* and *V8* are smooth in the following six species *R. (C.) endroedyi* Hirschmann, 1992; *R. (C.) kintampoensis* Hirschmann, 1992; *R. (C.) browni* Kontschán, 2009; *R. (C.) congoensis* Hirschmann, 1992; *R. (C.) campanellasimilis* Hirschmann, 1992 and *R. (C.) daelei* Hirschmann, 1992, contrary with the new one, where these setae are pilose. Setae *V6* pilose in the species *R. (C.) masoumbouensis* Hirschmann, 1992; *R. (C.) masoumbooides* Hirschmann, 1992; *R. (C.) bueaensis* Hirschmann, 1992; *R. (C.) perstructura* Hirschmann, 1992, but these setae are smooth in the new species. Setae *V7* is not pilose in the case of the species *R. (C.) africaguttasetta* Hirschmann, 1992 and *R. (C.) camerunis* Hirschmann, 1992, but pilose in the *R. (C.) leonensis* sp. nov. The setae *V7* and *V8* are pilose and setae *V6* and *V2* are smooth in the species *R. (C.) campanellae* Hirschmann, 1992 and *R. (C.) ghanaensis* Hirschmann, 1992 similar to the new species. But the sternal setae are very long (*St1* is reaching to insertion of *St2*) in the *R. (C.) ghanaensis* Hirschmann, 1992, which are short in the new one (*St1* is not reaching to insertion of *St2*) and female genital shield has an apical process in the species *R. (C.) campanellae* Hirschmann, 1992, which is missing in the new one.

## Zoogeographical notes

The West-African sub-region of the Ethiopian realm is the poorly investigated part of the world for Uropodina and rotundabaloghid mite point of view. Only 15 rotundabaloghid species are listed in this region. The majority of the known species are presented from Cameroon (*R. (C.) campanellasimilis* Hirschmann, 1992 and *R. (C.) daelei* Hirschmann, 1992; *R. (C.) masoumbouensis* Hirschmann, 1992; *R. (C.) masoumbooides* Hirschmann, 1992; *R. (C.) bueaensis* Hirschmann, 1992; *R. (C.) perstructura* Hirschmann, 1992; *R. (C.) africaguttasetta* Hirschmann, 1992 and *R. (C.) camerunis* Hirschmann, 1992; *R. (C.) campanellae* Hirschmann, 1992), three species are described from Ghana (*R. (C.) ghanaensis* Hirschmann, 1992; *R. (C.) endroedyi* Hirschmann, 1992; *R. (C.) kintampoensis* Hirschmann, 1992), one species from republic of Congo (*R. (C.) congoensis* Hirschmann, 1992), one species from Ivory Coast (*R. (C.) browni* Kontschán, 2009) and one species from Sierra Leone (*Rotundabaloghia (Circobaloghia) leonensis* sp. nov.). The other countries of the sub-region are absolutely unknown, numerous undescribed, new rotundabaloghids species can be lived in different habitats of these West-African countries.

## Acknowledgements

I am very grateful to Dr. Peter Schwendinger (MHNG) for his kind hospitality during my stay in Geneva (Schwitzerland).

## REFERENCES

- Hirschmann, W. 1992. Gangsystematik der Parasitiformes. Teil 534. 26 *Rotundabaloghia*-Arten aus Afrika (Ghana, Kamerun, Kongo, Rwanda, Tanzania) (Dinychini, Uropodinae). *Acarologie, Schriftenreihe für Vergleichende Milbenkunde*, 39: 25-45.
- Kontschán, J. 2010. Rotundabaloghiid mites of the world (Acari: Mesostigmata: Uropodina). *Ad Librum Kiadó, Budapest*, 116 p.
- Kontschán, J. and Starý, J. 2014. New species of Uropodina from Madagascar (Acari: Mesostigmata). *Zootaxa*, 3895 (4): 547-569.  
doi: 10.11646/zootaxa.3895.4.5
- Kontschán, J. and Starý, J. 2015. First record of the genus *Bloszykiella* in Kenya with the description of *Bloszykiella tertia* sp. n. (Acari: Uropodidae) from a *Pinus radiata* D. Don plantation. *African Invertebrates*, 56 (3): 629-635.  
doi: 10.5733/afin.056.0308

Edited by: Salih Doğan

Reviewed by: Three anonymous referees

**Citation:** Kontschán, J. 2019. First record of the rotundabaloghid mites (Acari: Mesostigmata) in Sierra Leone with the description of a new species. *Acarological Studies*, 1 (1): 20-22.