

Out of Europe: The first report of *Cephalojanetia* Willmann, 1951 from South America with the description of *C. klementi* sp. nov. from Paraguay (Acari: Mesostigmata: Trachyuropodidae)

Jenő Kotschán^{1,2*} 

¹ Plant Protection Institute, HUN-REN Centre for Agricultural Research, H-1525 Budapest, P.O. Box 102, Hungary

² Department of Plant Sciences, Albert Kázmér Faculty of Mosonmagyaróvár, Széchenyi István University, Vár square 2, H-9200, Mosonmagyaróvár, Hungary

RESEARCH ARTICLE

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ABSTRACT

The first non-European species of the genus *Cephalojanetia* Willmann, 1951 (Acari: Mesostigmata: Trachyuropodidae) is described as *C. klementi* sp. nov. from Paraguay. This species differs from the congeners by the absence of oval pits on the idiosoma and by the more than 20 pairs of semi-circular strongly sclerotized rings on the dorsal and ventral shields. A new genus diagnosis, accompanied by a list of known species of *Cephalojanetia*, is provided.

KEYWORDS

Uropodina, taxonomy, morphology, Neotropical realm

* Corresponding author. E-mail: kotschan.jeno@atk.hu

INTRODUCTION

The family Trachyuropodidae Berlese, 1917 contains 17 genera with more than 100 described species (Kontschán and Ermilov, 2023; Kontschán et al., 2025) from which more than 10% of known species were described from the last two decades (Kontschán, 2024; Kontschán and Ermilov, 2024, 2025a, 2025b; Kontschán et al., 2025). This family is a characteristic group of soil-dwelling mites, with a strongly sclerotized idiosoma bearing depressions, ridges, and other strongly sclerotized structures on its surface, and a specific gnathosoma morphology (Kontschán and Ermilov, 2023).

One of the smaller genera is the *Cephalojanetia* Willmann, 1951. These mites have numerous strongly sclerotized semi-circular rings situated on an elevated area of the dorsal shield, and their female genital shields are linguliform. Recently, only four species are known from Europe, the *Cephalojanetia multituberculata* (Hirschmann, 1976) from Spain and Austria, *C. multituberosa* (Willmann, 1951) and *C. tuberosa* (Hirschmann, 1976) from Austria, and *C. dentata* (Kontschán, 2007) from Hungary (Kontschán and Ermilov, 2023; Kontschán, 2024). Till today, no species has been collected from other regions of the world; therefore, it was a big surprise when an unknown species of this genus was found during an investigation of the soil-dwelling Uropodina from Paraguay in the collection of the Natural History Museum, Geneva (Switzerland). Previously, only five trachyuropodid species were known from this country (Kontschán et al., 2025), but this one was unexpected.

MATERIAL AND METHODS

Single holotype was placed in lactic acid and cleared for two weeks, then moved to half-covered slides and examined using a Leica 1000 microscope with a drawing tube. Photographs were taken with a Keyence VHX 5000 digital microscope. Specimens examined are stored in 70% ethanol and deposited in the Natural History Museum, Geneva (NHMG). Setae *h* = hypostomal seta, *v* = ventral setae of palp trochanter. All measurements and the scales in the figures are given in micrometres (µm).

RESULTS

Taxonomy

Family Trachyuropodidae Berlese, 1917

Genus *Cephalojanetia* Willmann, 1951

Cephalojanetia Willmann, 1951: 122

Trachyuropoda multituberosa-group Hirschmann, 1976: 2, 4; Wiśniewski & Hirschmann (1993): 93.

Cephalojanetia –Halliday, 2015: 108.

Diagnosis. See Kontschán and Ermilov (2023).

Type species. *Cephalojanetia multituberosa* Willmann, 1951: 122, by original designation.

Distribution. Europe and South America.

Cephalojanetia klementi sp. nov.

(Figs 1–9).

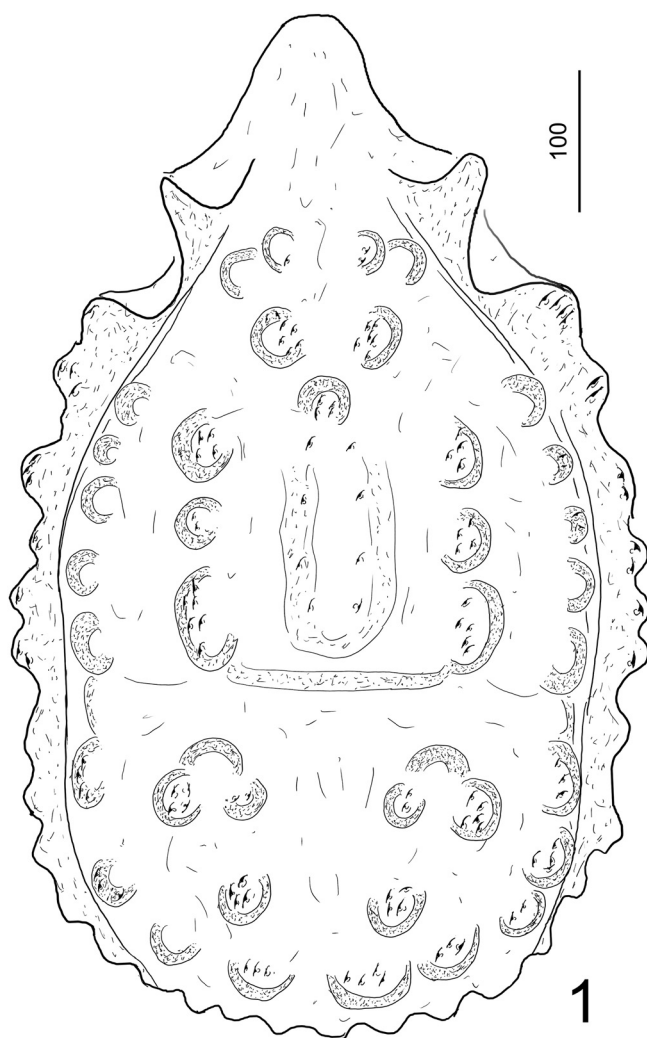


Fig. 1. *Cephalojanetia klementi* sp. nov., female, holotype, dorsal view

Diagnosis. Dorsal shield with more than 20 pairs of semi-circular strongly sclerotized rings and a strongly sclerotized transversal groove. Ventral shield with seven pairs of semi-circular strongly sclerotized rings. Sculpture of dorsal, ventral and genital shield without oval pits.

Material examined. *Holotype.* Female. "Paraguay, Par. 85/3. Prov. Cordillera, env. 6 km S Tobatí, Reposoir tamisage dans forêt d'arbres creux troncs pauris, 21. March 1985. Exp. zool. mus. de Geneva" coll.

Description. *Female* ($n = 1$). Idiosoma reddish-brown, 710 long and 450 wide, its shape oval.

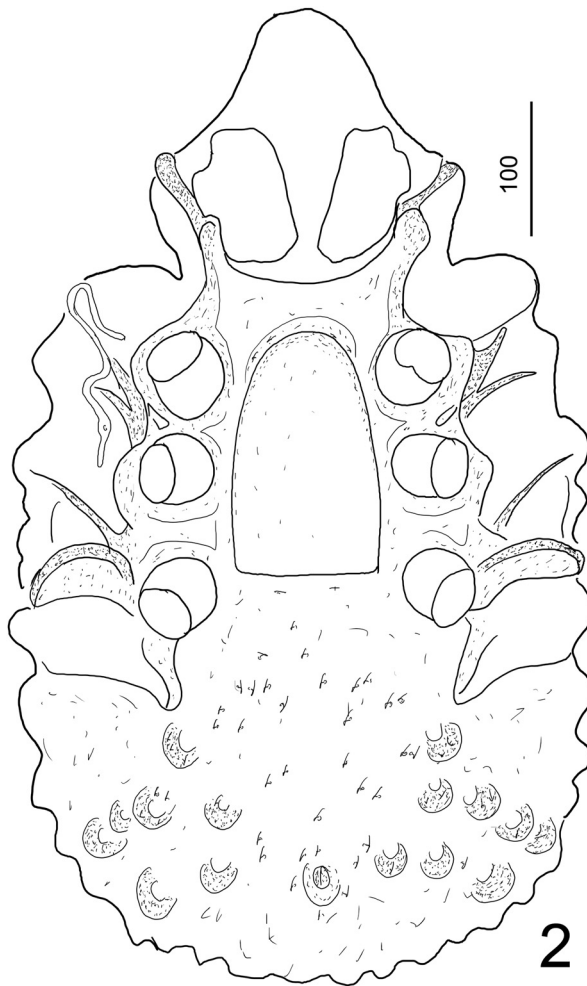
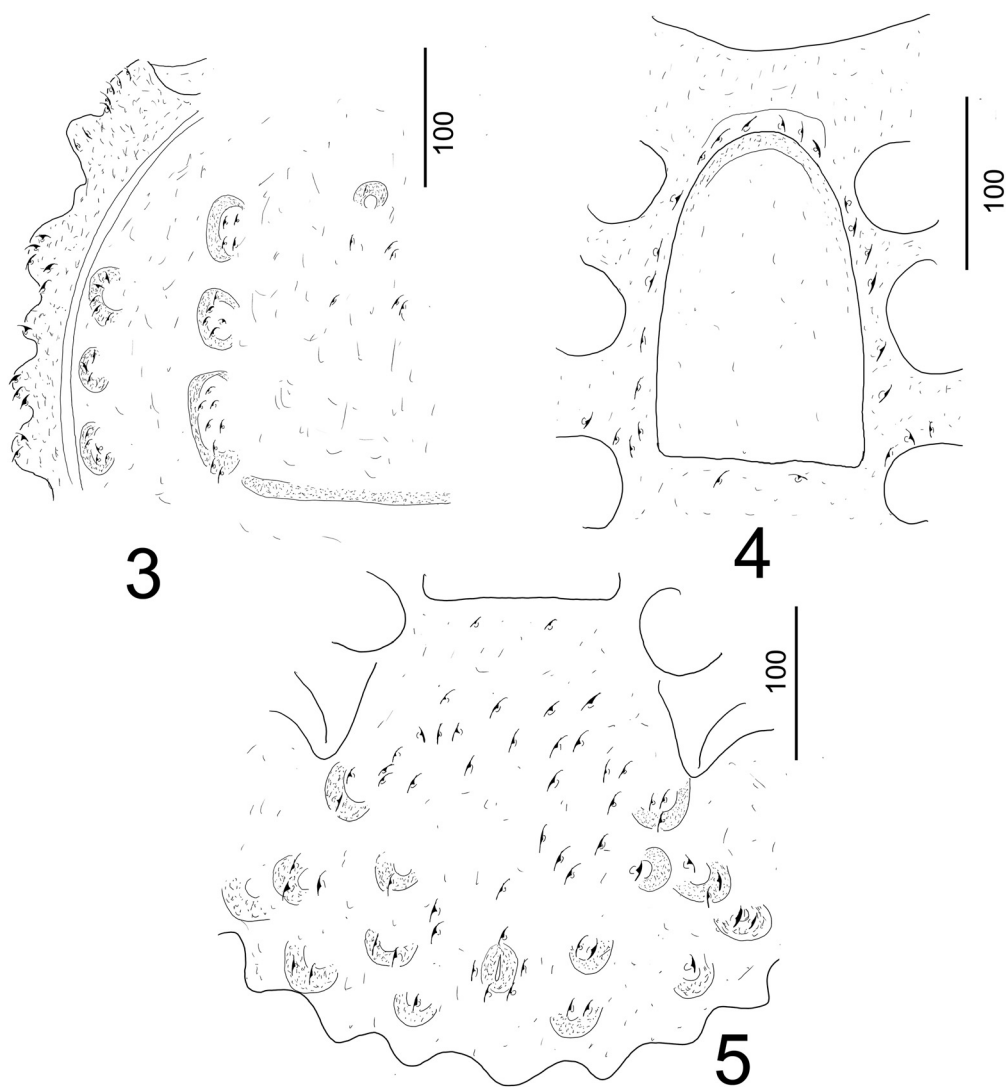


Fig. 2. *Cephalojanetia klementi* sp. nov., female, holotype, ventral view

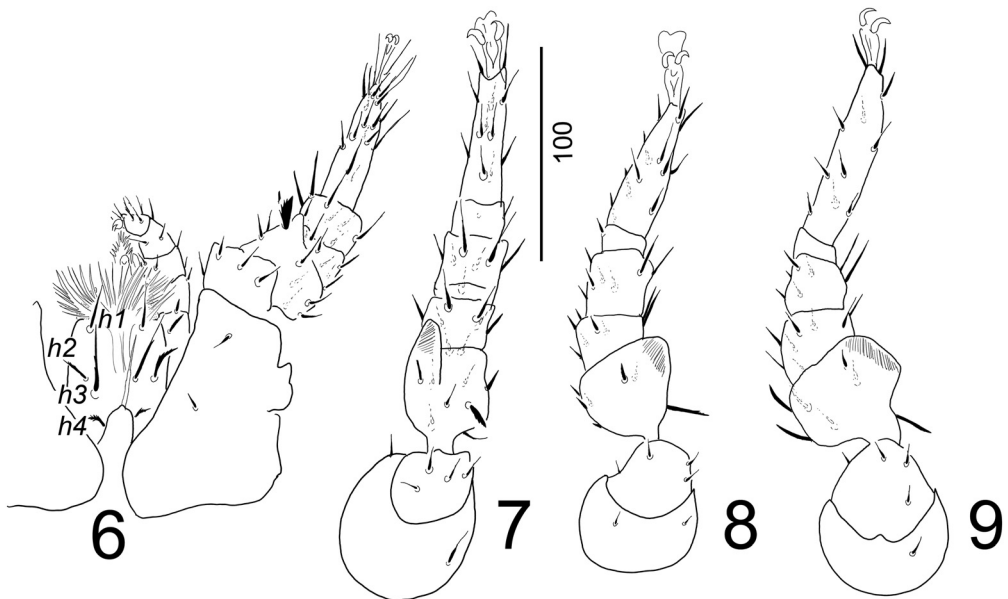
Dorsal idiosoma (Figs 1 and 10–11). Dorsal and marginal shields fused anteriorly. Dorsal shield 600 long and 345 wide. Central part of dorsal shield elevated from the neighbouring area. Dorsal shield bears more than 20 pairs of semi-circular shaped strongly sclerotized rings (ca 24–65 × ca 21–46) and a transversal strongly sclerotized groove (ca 160 long) and a U-shaped strongly sclerotized area. Strongly sclerotized regions bearing numerous T-shaped setae with a long crossbar and short stem. Outer margins of marginal shield undulate and bear several T-shaped setae (Fig. 3). Surface of dorsal and marginal shield without sculptural pattern (Fig. 13).

Ventral idiosoma (Figs 2 and 12). Base of tritosternum narrow, its laciniae serrate (Fig. 6). 13 pairs of T-shaped sternal setae situated around genital opening. Surface of sternal shield smooth (Fig. 4). Genital shield scutiform, ca 185 long and ca 114 wide on its basis, its surface



Figs 3–5. *Cephalojanetia klementi* sp. nov., female, holotype, ventral view. 3. Part of dorsal idiosoma. 4. Intercoxal area. 5. Ventral shield

without sculptural pattern (Fig. 4). Ventral shield with seven pairs of semi-circular shaped strongly sclerotized rings ($ca\ 24\text{--}28 \times ca\ 25\text{--}30$). Numerous T-shaped setae situated on central area of ventral shield and close to semi-circular strongly sclerotized rings (Fig. 5). Anal opening small, $ca\ 18$ long and $ca\ 16$ wide. Five T-shaped setae situated around genital opening. Stigmata situated close to coxae III, post-stigmatid part of peritreme short and straight, prestigmatid part long and hook shaped. Pedofossae well developed, their surface smooth, without separate groove for tarsi IV.



Figs 6–9. *Cephalojanetia klementi* sp. nov., female, holotype. 6. Tritosternum, ventral view of gnathosoma, palp, epistome and leg I in ventral view. 7. Ventral view of leg II. 8. Ventral view of leg III. 9. Ventral view of leg IV

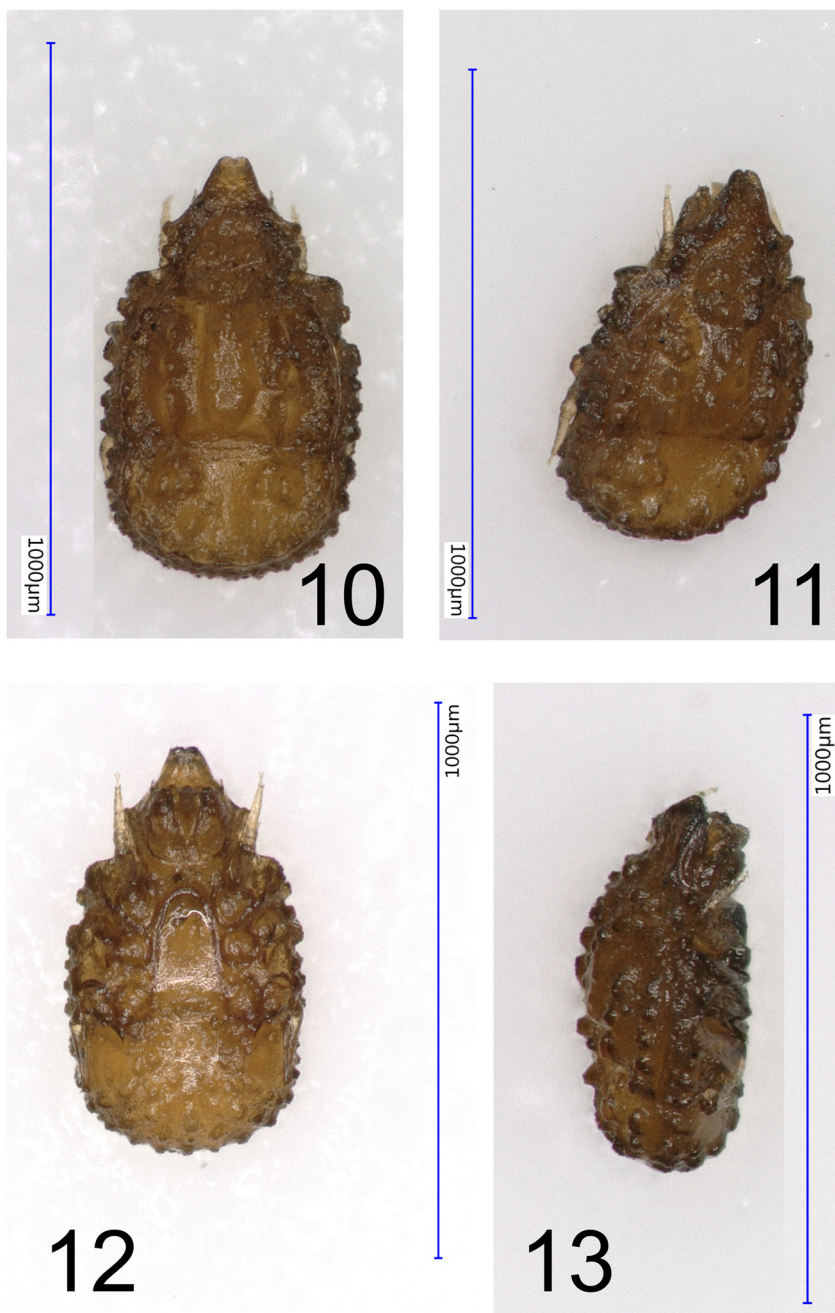
Gnathosoma (Fig. 6). Corniculi horn-like, internal malae moustache-like and longer than corniculi. Hypostomal setae *h1* smooth, *ca* 20–21 long, *h2* (*ca* 13–14), *h3* (*ca* 31–33) and *h4* (*ca* 10–11) marginally serrate. Ventral setae of palptrochanter *v2* marginally serrate, *v1* smooth, *v2* two times longer than *v1*. All setae on palp smooth and needle-like. Epistome apically serrate. Chelicerae not visible.

Legs (Figs 6–9). Legs I 220–222, legs II 253–255, legs III 218–220, and legs IV 245–248 long. Legs I with tarsal claws, but it smaller than others on tip of legs II–IV. Majority of leg setae smooth and needle-like, except some serrate dorsal setae and one ventral seta on femora I–IV. Femora of all legs bear flap-like ventral prolongation.

Male, nymphs and larvae unknown.

Etymology. I dedicate the new species to Dr. Zoltán Klement (1926–2005), the well-known phytobacteriologist and phytopathologist of the Plant Protection Institute, Centre for Agricultural Research, who was born 100 years ago.

Remark. All known *Cephalojanetia* species have oval pits on the dorsal idiosoma; these characters are missing from the new species. On the other hand, the new species has more than 20 pairs of dorsal and 7 pairs of ventral strongly sclerotized semicircular rings, in contrast to all known species, which have 1–7 dorsal strongly sclerotized semicircular rings and no ventral strongly sclerotized semicircular rings. The transversal strongly sclerotized dorsal groove is also missing from all known species.



Figs 10–13. Photos about *Cephalojanetia klementi* **sp. nov.**, female, holotype. 11. Dorsal view. 12. Dorsolateral view. 13. Ventral view. 14 Lateral view

DISCUSSION

The new occurrence of this genus is a big surprise in the Neotropical realm, because all *Cephalojanetia* species were collected only in Europe (Hirschmann, 1976; Willmann, 1951; Hirschmann, 1976; Kontschán, 2007; Kontschán and Ermilov, 2023; Kontschán, 2024). Based on this new and unusual record for this genus, I suspect that these small, rare species may be found in several other parts of the world, but they are very rare and rarely collected.

Conflict of interest: JK is a member of the Editorial Board of the journal and was not involved in the review process in any capacity.

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