

## NEW SPECIES AND NEW RECORD OF MITES OF THE GENUS *RUBROSCIRUS* DEN HEYER, 1979 (ACARINA: PROSTIGMATA: CUNAXIDAE) FROM UKRAINE

A. L. Sergeyenko

Nikita Botanical Gardens — National Scientific Center, Yalta, Crimea, 98648 Ukraine, e-mail: sergeyenko@optima.com.ua

ABSTRACT: Female and male of mite *Rubroscirus khaustovi* sp. n. are described, female of *R. sinensis* Fan, 1992 is redescribed based on material from Ukraine. The genus *Rubroscirus* and *R. sinensis* are recorded for the first time for Ukraine.

Key words: Mites, Prostigmata, Cunaxidae, *Rubroscirus*, new species, new record, Ukraine

The genus *Rubroscirus* was proposed to include several species of *Cunaxa* Von Heyden, 1826 by Den Heyer (1979). Smiley (1992) synonymized this genus with *Cunaxa*, but based on results of study of Crimean cunaxid mites I retain the genus *Rubroscirus*. The genus *Rubroscirus* includes a group of species, which are similar to *Cunaxa* but differ from it by the following complex of character states: the dorsal plates with a distinct reticulation (Fig. 2), the dorsal integument with numerous slender papillae-bearing striations (Fig. 3), and also with an area of longitudinal striation between setae  $d_1$  in females.

In this paper I describe a new species *Rubroscirus khaustovi* sp. n. from Ukraine and redescribe *R. sinensis* Fan, 1992. The genus *Rubroscirus* and the species *R. sinensis* are recorded for the first time for Ukraine.

In the description, the terminology generally follows Den Heyer (1981), the nomenclature of dorsal setae follows Kethley (1990). All measurements are given in micrometers ( $\mu\text{m}$ ).

### *Rubroscirus khaustovi* sp. n.

Figs 1–20.

**Female** (Figs. 1–11). Gnathosoma (Figs. 5–7). Hypognathum (length/width ratio — 1.6–1.7) distinctly sclerotized, covered with numerous papillae and with ventral subcuticular ridges (Fig. 5). Papillae form rows in distal part of hypognathum. Two pairs of adoral setae are conspicuous; distal pair is longer than posterior one. Setae  $hg_3$  longest on hypognathum. Cheliceral segment II proximodorsally with papillae (Fig. 6). Cheliceral seta present. Chaetotaxy of palps is typical of the genus (Fig. 7). Surface of palps with papillae.

Length of idiosoma 465 (405–550 in 9 paratypes); width 345 (315–430).

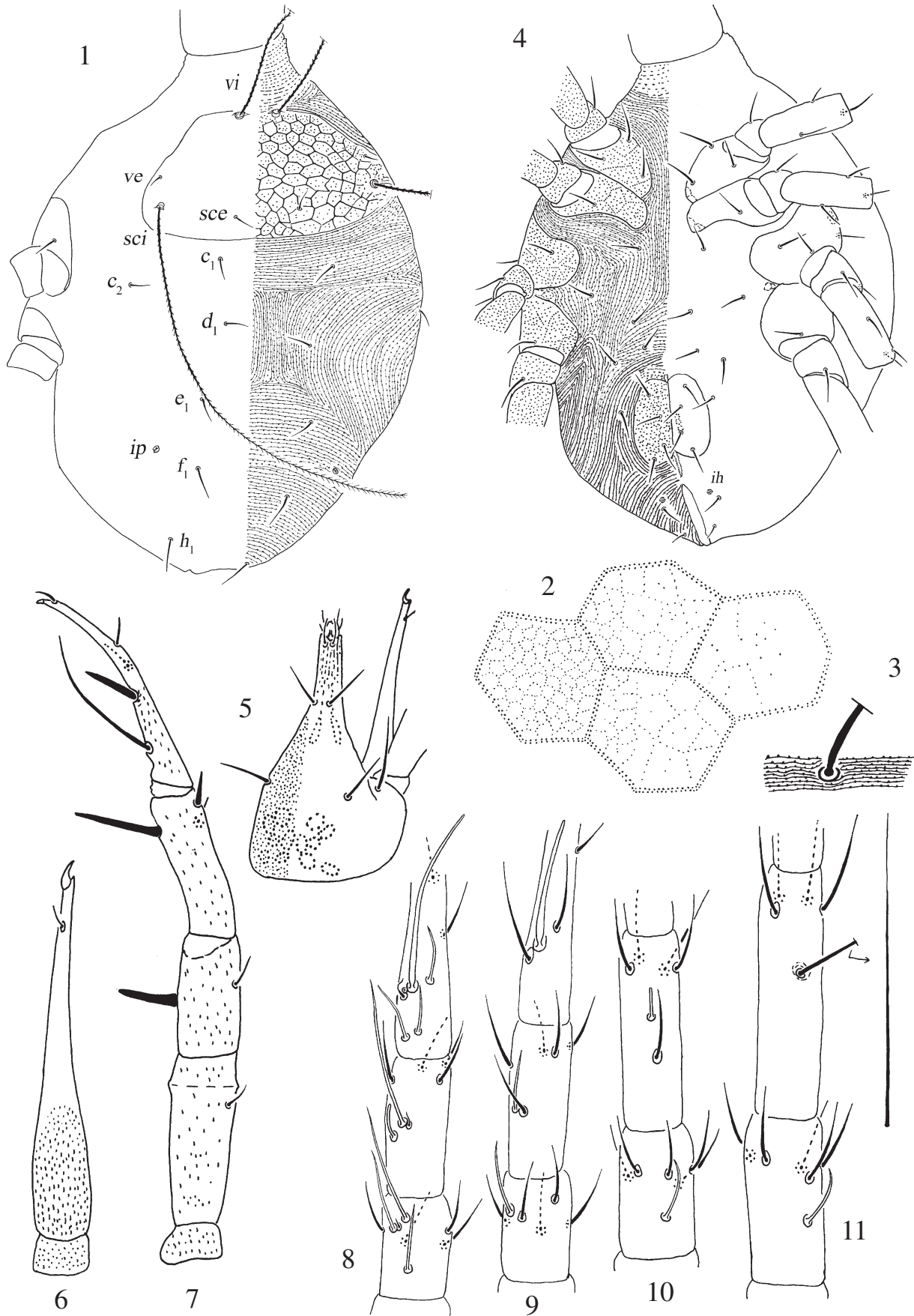
Idiosomal dorsum (Fig. 1). The sclerotized propodosomal plate with papillae forming reticulation pattern (Fig. 2). Central polygonal cells with few sparsely placed papillae. Two pairs of setose

sensilla present; posterior pair is longer than anterior one. Setae  $ve$  about  $2/3$  as long as  $sce$ . Setae  $sce$  3 times shorter than distance between their bases. Hysterosoma without plate. Dorsal integument with numerous slender papillae-bearing striations (Fig. 3). Setae  $c_1$ ,  $d_1$  and  $e_1$  about equal in length;  $f_1$  and  $h_1$  only slightly longer. Length of dorsal setae:  $ve$  12 (11–12),  $sce$  17 (17–18),  $c_1$  19 (19–22),  $c_2$  13 (13–16),  $d_1$  22 (18–22),  $e_1$  22 (20–22),  $f_1$  28 (25–33),  $h_1$  28 (28–33); distances between dorsal setae:  $sce - sce$  57 (56–67),  $sci - sce$  67 (58–67).

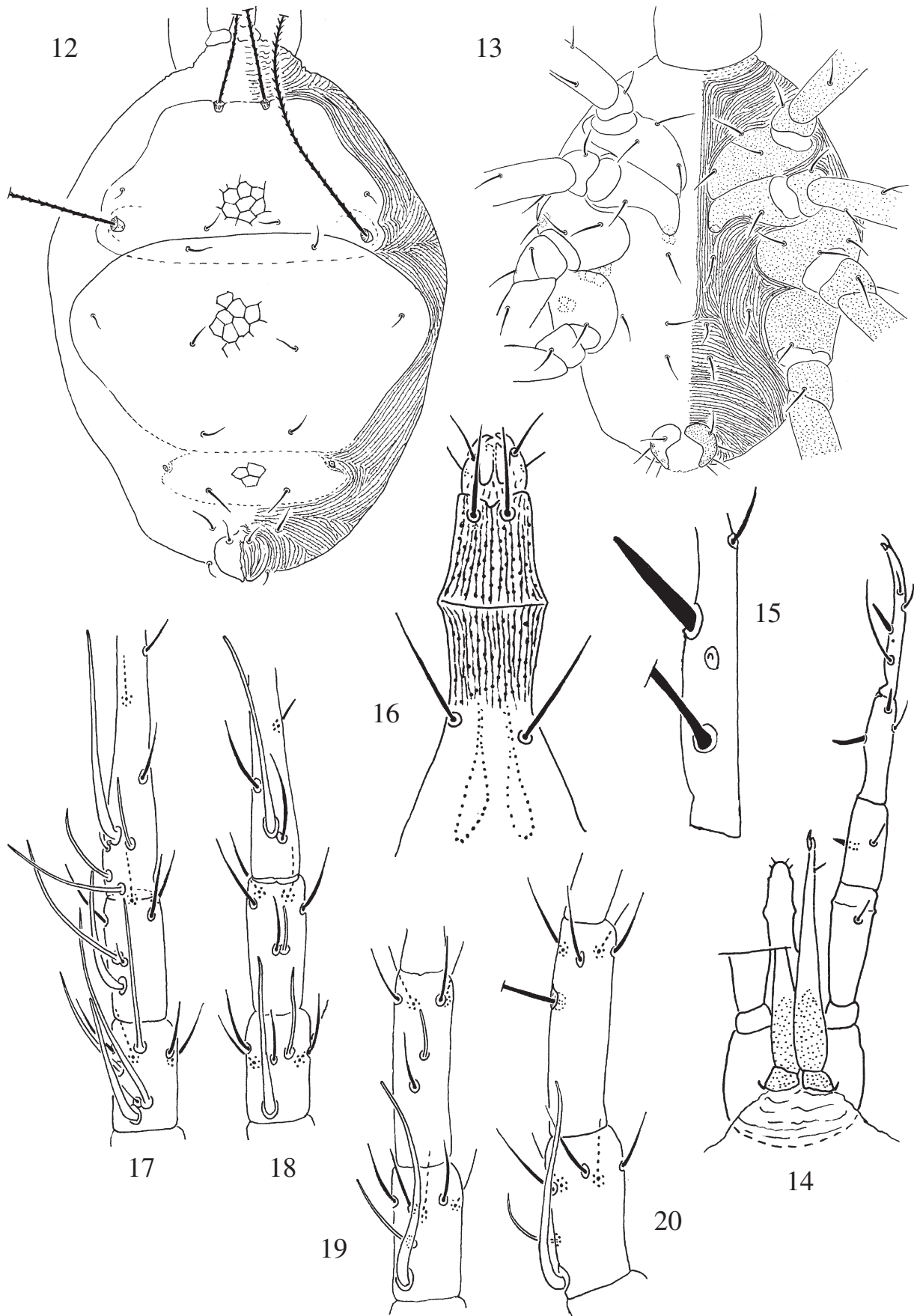
Idiosomal venter (Fig. 4) with numerous sparse papillae (they can form small cells especially on coxae III, IV and genital valves). Coxae well developed with subcuticular ridges. Genital valves with 4 pairs of subequal (20–23) setae. Two pairs of small genital acetabula present; their the anterior pair divided. Ventral hysterosoma with 6 pairs of simple setae, excluding coxae, genital and anal region. Anal region with 2 pair of setae and pair of cupules.

Legs (Figs. 8–11). Length of legs I 380 (370–385); II 375 (370–380); III 435 (430–440); IV 490 (485–490) (measured from base of trochanter to apex of tarsus, excluding ambulacrum). Surface of all legs with papillae which can form small cells on legs III and IV. Legs I–IV setation: coxae 3 — 1 – 3 – 1 *sts*; trochanters 1 – 1 – 2 – 1 *sts*; femora  $3/4 - 3/4 - 1/4$  *sts*; genua 2 *asl*, [1 *asl*, 1 *sts*], 4 *sts* – 1 *asl*, 5 *sts* – 1 *asl*, 5 *sts* – 1 *asl*, 5 *sts*; tibia 1 *bsl*, [1 *asl*, 1 *sts*], 4 *sts* – [1 *asl*, 1 *sts*], 4 *sts* – 1 *bsl*, 5 *sts*, – 1 *T*, 4 *sts*; tarsi 3 *bsl*, [1 *bsl*, 1 *pe*, 1 *sts*], 2 *tsl*, 20 *sts* – 1 *bsl*, 1 *tsl*, 21 *sts* – 1 *tsl*, 19 *sts* – 19 *sts*.

**Male** (Figs. 12–20). Length of idiosoma 270–280 (for 2 paratypes); width 205–210. Dorsum with three sclerotized plates (Fig. 12). All dorsal plates reticulated. Anterior hysterosomal plate large, trapezoid, with 4 pairs of subequal setae (10–13). Posterior hysterosomal plate small, weakly sclerotized (borders indistinct), with pair of setae  $f_1$  (14–17). Venter (Fig. 13) similar to female but ventral hysterosoma with only 4 pairs of simple setae,



Figs. 1-11. *Rubroscirus khaustovi* sp. n., female: 1 — idiosomal dorsum, 2 — reticulation of propodosomal plate, 3 — hysterosomal striations, 4 — idiosomal venter, 5 — hypognathum, 6 — chelicera, 7 — palp, 8 — genua, tibia and tarsi of leg I, 9 — genua, tibia and tarsi of leg II, 10 — genua and tibia of leg III, 11 — genua and tibia of leg IV.



Figs. 12–20. *Rubroscirus khaustovi* sp. n., male: 12 — idiosomal dorsum, 13 — idiosomal venter, 14 — gnathosoma, 15 — tibiotarsus of palps, 16 — distal part of hypognathum, 17 — genua, tibia and tarsi of leg I, 18 — genua, tibia and tarsi of leg II, 19 — genua and tibia of leg III, 20 — genua and tibia of leg IV.

excluding coxae, genital and anal region. Genital valves situated more terminally. Gnathosoma (Figs. 14–16) as in female except diamond-shaped form of distal part of hypognathum. Legs (Figs. 17–20) as in female except chaetotaxy of: femora IV: 0/4 *sts*, genua I–IV: [1 *bsl*, 1 *asl*, 1 *sts*], 2 *asl*, 4 *sts* – 1 *bsl*, 1 *asl* 5 *sts* – 1 *bsl*, 1 *asl* 5 *sts* – 1 *bsl*, 1 *asl* 5 *sts*; tarsi I–IV: 3 *bsl*, [1 *bsl*, 1 *pe*, 1 *sts*], 2 *tsl*, 19 *sts* – 1 *bsl*, 1 *tsl*, 18 *sts* – 17 *sts* – 15 *sts*. All legs are longer than idiosoma.

**Deutonymph, protonymph, tritonymph, and larva:** unknown.

**Differential diagnosis.** The females of new species are similar to *Rubroscirus africanus* Den Heyer, 1979 by the shape of the idiosoma, structure of palps, and leg chaetotaxy. These species mainly differ from each other by males. The male hypognathum in *R. khaustovi* sp. n. is diamond-shaped (cone-shaped in *R. africanus*). The idiosomal dorsum of the males of *R. khaustovi* sp. n. with 3 sclerotized plates (2 in *R. africanus*).

**Type material.** Female holotype (# C-3) UKRAINE: Crimea, vicinity of Donuzlav lake, in cereal sod, 26 May 2002, coll. A.L. Sergeyenko; paratypes: 3 females and 1 male, Crimea, Pervomaisk reg., vicinity of Kashtanovka, in cereal sod, 15 September 2002, coll. A.L. Sergeyenko; 1 female, Crimea, Simferopol' reg., vicinity of Lozovoe, 10 November 2000, coll. N.M. Kovblyuk; 1 female, Crimea, vicinity of Skvorctsovo, in sod, 26 May 2002, coll. A.L. Sergeyenko; 1 female, Crimea, Bakhchysaray reg., vicinity of Tepekermen mountain, in cereal sod, 15 June 2002, coll. A.L. Sergeyenko; 1 female and 1 male, Crimea, Tyuptarkhan peninsula, in wormwood sod, 20 June 2004, coll. A.L. Sergeyenko; 1 female, Crimea, vicinity of Yevpatoria, in wormwood sod under *Elaeagnus argentea*, 26 May 2002, coll. A.L. Sergeyenko; 1 female, Crimea, Pervomaisk reg., vicinity of Voykovo, in sod under *Gleditsia triacanthos*, 15 September 2002, coll. A.L. Sergeyenko.

The holotype and paratypes are deposited in the collection of the Department of Agroecology, Nikita Botanical Gardens — National Scientific Center, Yalta, Crimea, Ukraine.

**Etymology.** This species is named in honor of the well known acarologist, Dr. A. A. Khaustov (Nikita Botanical Gardens — National Scientific Center, Ukraine).

#### ***Rubroscirus sinensis* Fan, 1992**

**Female** (Figs. 21–30). Length of idiosoma 485; width 370. Idiosoma with one sclerotized

dorsal propodosomal plate (Fig. 21) with reticulation pattern as in *R. khaustovi* sp. n. but smaller polygonal cells. Posterior pair of sensilla longer than anterior one. Setae *ve* (15) about half as long as *sce* (30). Hysterosoma without plate with area of longitudinal striation between setae  $d_1$ . Setae  $c_1$ ,  $d_1$  and  $e_1$  simple and subequal (30–35). Setae  $f_1$  (55) and  $h_1$  (55) serrate and the longest on hysterosoma (Fig. 22). Dorsal integument with papillae-bearing striations. Coxae, except coxae IV, well discernible, with subcuticular ridges (Fig. 23). Numerous papillae mainly sparsely placed but can form small cells especially on lateral side of coxae III and IV. Ventral hysterosoma with 5 pairs of simple setae, excluding coxae, genital and anal region. Genital valves with 4 pairs of setae and 2 pairs of small genital acetabula. Seta  $g_3$  (30) slightly longer  $g_1$ ,  $g_2$  and  $g_4$  (20–25). Anal region with pair of anal setae and pair of cupules. Tibiotarsus of palps with spur-like process near spine-like seta (Fig. 25).

Legs (Figs. 27–30). Length of legs I 410; II 415; III 460; IV 525. Surface of all legs with papillae. Legs I–IV setation: coxae 3 – 1 – 3 – 2 *sts*; trochanters 1 – 1 – 2 – 1 *sts*; femora 3/4 – 3/4 – 3/4 – 1/4 *sts*; genua 3 *asl*, [1 *asl*, 1 *sts*], 4 *sts* – 2 *asl*, 5 *sts* – 1 *asl*, 5 *sts* – 2 *asl*, 5 *sts*; tibia 1 *bsl*, [1 *asl*, 1 *sts*], 4 *sts* – [1 *asl*, 1 *sts*], 4 *sts* – 1 *bsl*, 5 *sts*, – 1 *T*, 4 *sts*; tarsi 3 *bsl*, [1 *bsl*, 1 *pe*, 1 *sts*], 2 *tsl*, 20 *sts* – 1 *bsl*, 1 *tsl*, 21 *sts* – 1 *tsl*, 19 *sts* – 19 *sts*. Solenidion on tibia III small.

#### **ACKNOWLEDGEMENTS**

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#### **REFERENCES**

- Den Heyer J. 1981. Systematics of the family Cunaxidae Thor, 1902 (Actinedida: Acarida). *Publications of the University of the North*, ser. A 24, 1–19.
- Den Heyer, J. 1979. *Rubroscirus*, a new cunaxid genus (Prostigmata: Acari) with three new species from the Ethiopian region. *Acarologia*, 20(1): 70–92.
- Fan Q.-H. 1992. [Two new species of the genus *Rubroscirus* (Acari: Cunaxidae)]. In Fujian Association for Science and Technology first Academic Annual Meeting of Youths Proceedings. Fujian Sciences and Technological Press, pp. 723–726. [In Chinese]
- Kethley J. 1990. Acarina: Prostigmata (Actinedida). In: D.L. Dindal. (ed). Soil biology guide. New York: John Wiley & Sons, 668–756pp.
- Smiley R. 1992. *The predatory mite family Cunaxidae (Acari) of the world with a new classification*. Michigan: Indira Publishing House. 356 pp.



Figs. 21–30. *Rubroscirus sinensis* Fan, 1992., female: 21 — idiosomal dorsum, 22 — setae  $f_1$ , 23 — idiosomal venter, 24 — palp, 25 — tibiotarsus of palps, 26 — hypognathum, 27 — genua, tibia and tarsi of leg I, 28 — genua, tibia and tarsi of leg II, 29 — genua and tibia of leg III, 30 — genua and tibia of leg IV.