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# A new genus and three new species of mites (Acari: Acaridida) phoretic on termites infesting the camphor trees in Aswan, Egypt

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**Abstract** – A new genus (*Mahunkallinia* gen. n.) and four new species (*Mahunkallinia serratus* sp. n., *Froriepea negmi* sp. n., *Calvolia solimani* sp. n. and *Acotyledon longsetoses* sp. n.) are described from hypopial nymphs (heteromorphic deutonymphs) from nests of *Amitermes desertorum* (DESNEUX, 1902) infesting camphor trees in the Botanical Island of tropical and subtropical plants, Aswan, Egypt. This island is located in the middle of the Nile, in front of Aswan town, and covers an area of 17 feddans. Parts of termite nests inside the camphor trees were collected monthly from the area of study and mites were isolated and identified. The result of taxonomic examination concerning the mite fauna living in termite nests of *Amitermes desertorum* is given. With 28 figures.

## **Mahunkallinia** gen. n.

*Diagnosis (Hypopus).* Body ovoid in shape, arrow anteriorly and wide posteriorly. Propodosoma comparatively rounded at anterior and serrated at lateral margins. Dorsosejugal region ornamented with heavy transversal lines. Notogastral surface with thin and short setae, the marginal ones longer. Infracapitulum of gnathosoma small, its shape approximately trapeziform. Sternum not reaching arc of sejugal apodemes. Epimeres 2 and those on posterior sternal plate closed. Epimeres 1 and 3 with a suction disk each, a pair of setae adjacent to primordium of genital opening together with a pair of disks standing in the middle area between primordium of genital opening and coxae of legs IV. Adhering plate large, removed from the posterior margin of the body, all disks D and Ds well developed. Claws of all legs comparatively large, legs I and II with large adhering setae, absent on the posterior ones.

*Type species – Mahunkallinia serratus* sp. n.

*Remarks.* The new genus belongs in the relationship of *Forcellinia* OUDEMANS, 1924, but agrees in some features also with *Cosmoglyphus* OUDEMANS, 1932 and *Caloglyphus* BERLESE, 1923. From the three genera, the new genus differs primarily by the structure of propodosoma and the structure and chaetotaxy of the legs.

## **Mahunkallinia serratus** sp. n.
(Figs 1–8)

*Measurements.* Length: 170–208 µm, width: 117–144 µm.

*Description. Dorsal side* (Fig. 1). Propodosoma comparatively narrow, anterior margin convexly rounded, laterally with a denticulate body margin. Dorsosejugal region wide, ornamented with sculpture consisting of heavy transversal lines. Scapular setae of propodosoma simple and thin, inner pair shorter than outer one.Notogastral surface smooth, its inner setae scarce, yet short.The marginal notogastral setae slightly long, the posterior pair longer. – *Ventral side* (Fig. 2). Gnathosoma (Fig. 8) small, infracapitulum wide, approximately trapezoid in its shape, infracapitular setae long, palpi well discrete, solenidia much longer than infracapitulum. Apodemes thick, apodemes of anterior sternal plate long, but not reaching arc of sejugal apodeme, apodemes 2 reaching arc of sejugal one. Apodemes 3, 4 and the posterior sternal apodeme long, thus epimeres on anterior and posterior sternal plates closed. Epimeres 1, 3 with a comparatively large suction disk each, a pair of larger suction disks standing far from primordium of genital opening, and a pair of aggenital setae adjacent to primordium of genital opening. Adhering plate (Fig. 3) large, entirely filling a space between legs IV. Disks D and Ds well developed. – *Legs* (Figs 4–7). Tarsi of legs I and II with comparatively long and straight claws, legs III and IV with large and falciform ones. Adhering setae on tarsi of legs I broad and spoon-shaped, legs II with narrower and phylliform ones. Tarsi of legs III and IV with majority of setae long and piliform. Solenidia j1 of legs I and II long, longer on leg I, both originating close to tibial apex. Solenidia w1 of tarsi of legs I and II short and thick, end with approximately large swollen vertex.

*Material examined.* Holotype and 7 paratypes are extracted from nests of *Amitermes desertorum* (DESNEUX, 1902) infesting camphor trees, Botanical Island, Aswan, Egypt, leg. S. A. ERAKY, 20.03.1998. Holotype and 5 paratypes are deposited in the Plant Protection Department, Faculty of Agriculture, Assiut University, Assiut, Egypt. Two paratypes are deposited in the Arachnoidea Collection of the Hungarian Natural History Museum, Budapest, Hungary.

*Remarks*: According to the generic description, the new species cannot be identified with any known species.

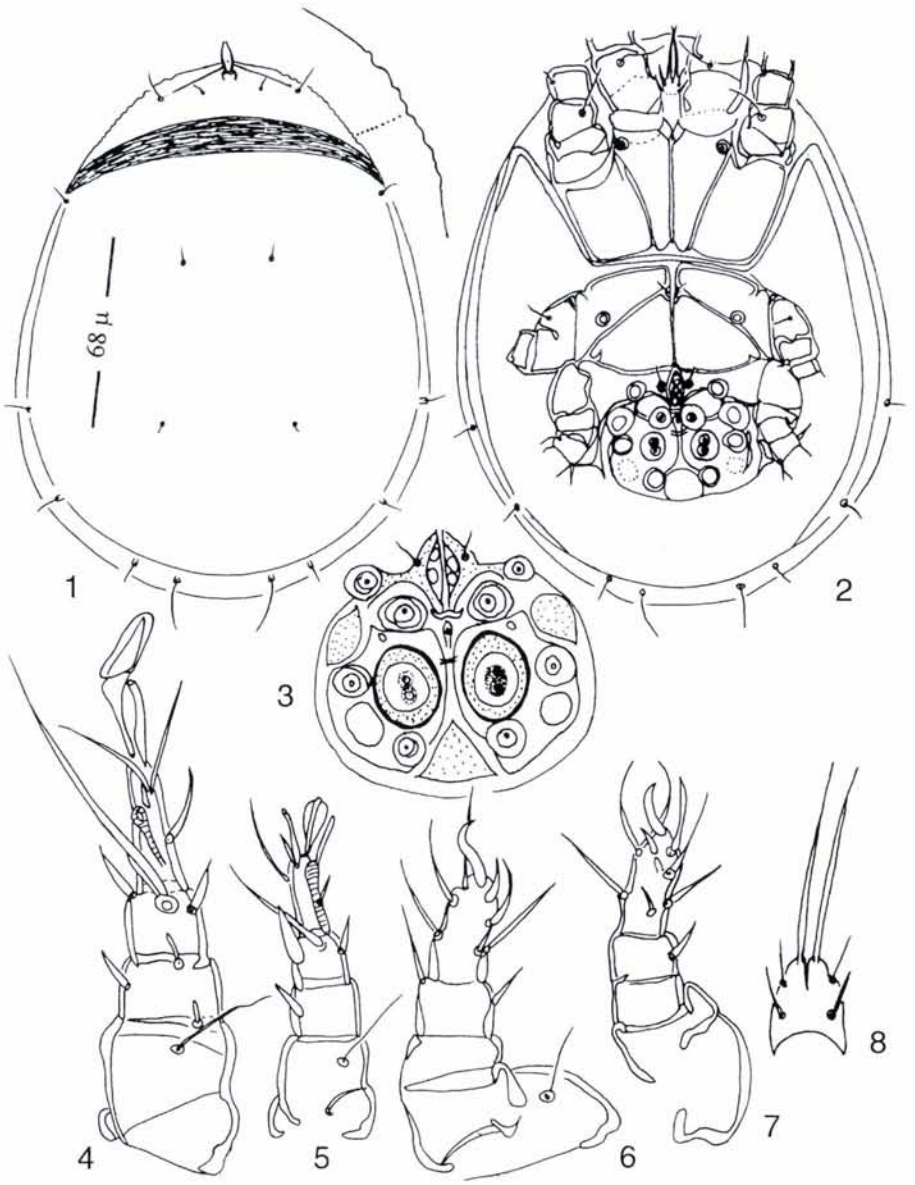
I dedicate the new genus to Prof. Dr. S. MAHUNKA (Budapest, Hungary), the renown acarologist, for his continuous encouragement and help.

## **Froriepia negmi** sp. n.
(Figs 9–14)

*Measurements.* Length: 124–131 µm, width: 92–98 µm.

*Description. Dorsal side* (Fig. 9). Body approximately ovoid in outline, broadly rounded off in front, widest in the middle and gradually narrowing towards rear end. Propodosoma encircling hysterosoma like a narrow strip. Rostrum feebly marked and arcuately projects anteriorly. Dorsosejugal region also narrow, without any sculpture. Prodorsal setae invisible. Hysterosomal setae simple, short and acicular. – *Ventral side* (Fig. 10). Gnathosoma modified, long, with thickened base. Palpi, infracapitular seta and solenidia unrecognizable. Anterior sternal plate long, sternocoxal regions, especially apodemes 1 and 2 longitudinally compressed, epimeres 2 nearly quadratic. Apodemes 1 not reaching arc of sejugal apodemes, apodemes 2 fused posteriorly with sejugal apodemes. Third epimeres not touching each other in the middle. Epimeres 1, 2 and 3 closed. Apodemes 4 well developed, laterally with suction disks, posterior sternal apodeme reduced. Epimeres 1 with a small, epimeres 3 with a considerably large suction disk, and a pair of suction

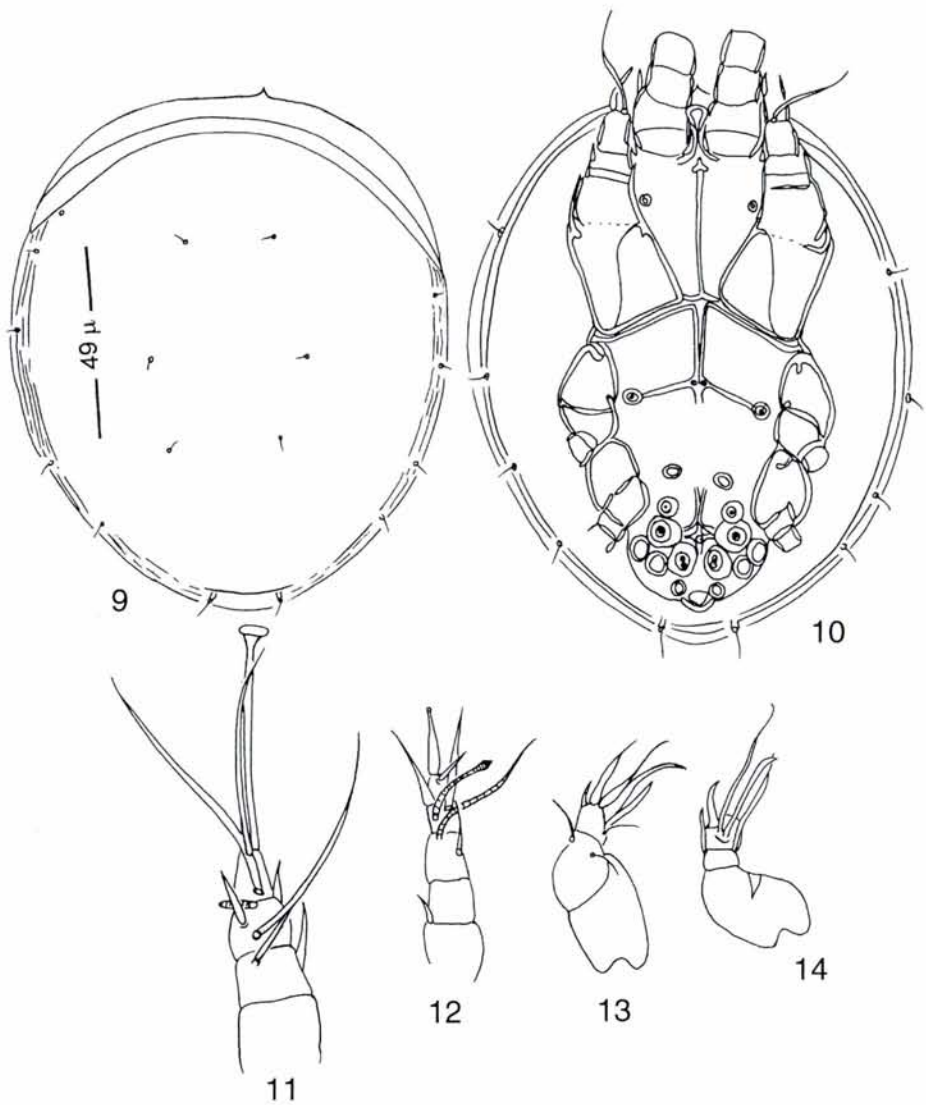
disks near primordium of genital opening. Adhering plate normally developed, originating not far from the posterior body margin. Disks D1 larger than D2. – *Legs* (Figs 11–14). Tarsus of leg I bottle-shaped with a very long, setiform and feebly bent claw, and an extremely long adhering seta, longer than claw having a bulbous end. Solenidium w1 on tarsus of leg I extraordinarily long, orig-




**Figs 1–8.** *Mahunkallinia serratus* sp. n. (Deutonymph): 1= dorsal side, 2 = ventral side, 3 = adhering plate, 4 = leg I, 5 = leg II, 6 = leg III, 7 = leg IV, 8 = gnathosoma

inating close to base of tarsus, solenidium j1 and d1 also long, former standing in the middle of tibia. Tarsus of leg II with bootle-shaped claw, solenidium w1 on tarsus of leg II comparatively thicker, but shorter than solenidium j1 and has a scapose-shaped end. Legs III and IV, much shorter with a comparatively long claw each.

*Material examined*: Holotype and 2 paratypes are extracted from nests of *Amitermes desertorum* (DESNEUX, 1902) infesting camphor trees, Botanical Island, Aswan, Egypt, leg. S. A. ERAKY, 12.04.1998. Holotype and one paratype are deposited in the Plant Protection Department, Faculty




**Figs 9–14.** *Froriepia negmi* sp. n. (Deutonymph): 9 = dorsal side, 10 = ventral side, 11 = leg I, 12 = leg II, 13 = leg III, 14 = leg IV

of Agriculture, Assiut University, Assiut, Egypt. One paratype is deposited in the Arachnoidea Collection of the Hungarian Natural History Museum, Budapest, Hungary.

Remarks. Owing to its unique shape of gnathosoma, the course of apodemes, the structure and chaetotaxy of legs, the new species may readily be separated from all other related congeners of the genus *Froriepia* VITZTHUM, 1919 (e.g., *F. vimariensis* VITZTHUM, 1919, *F. flagellata* MAHUNKA, 1973 and *F. heterotricha* MAHUNKA, 1978).

I dedicate the new species to Prof. Dr. A. NEGM (entomologist), Head of Plant Protection Department, Faculty of Agriculture, Assiut University, Assiut, Egypt, for his courtesy.

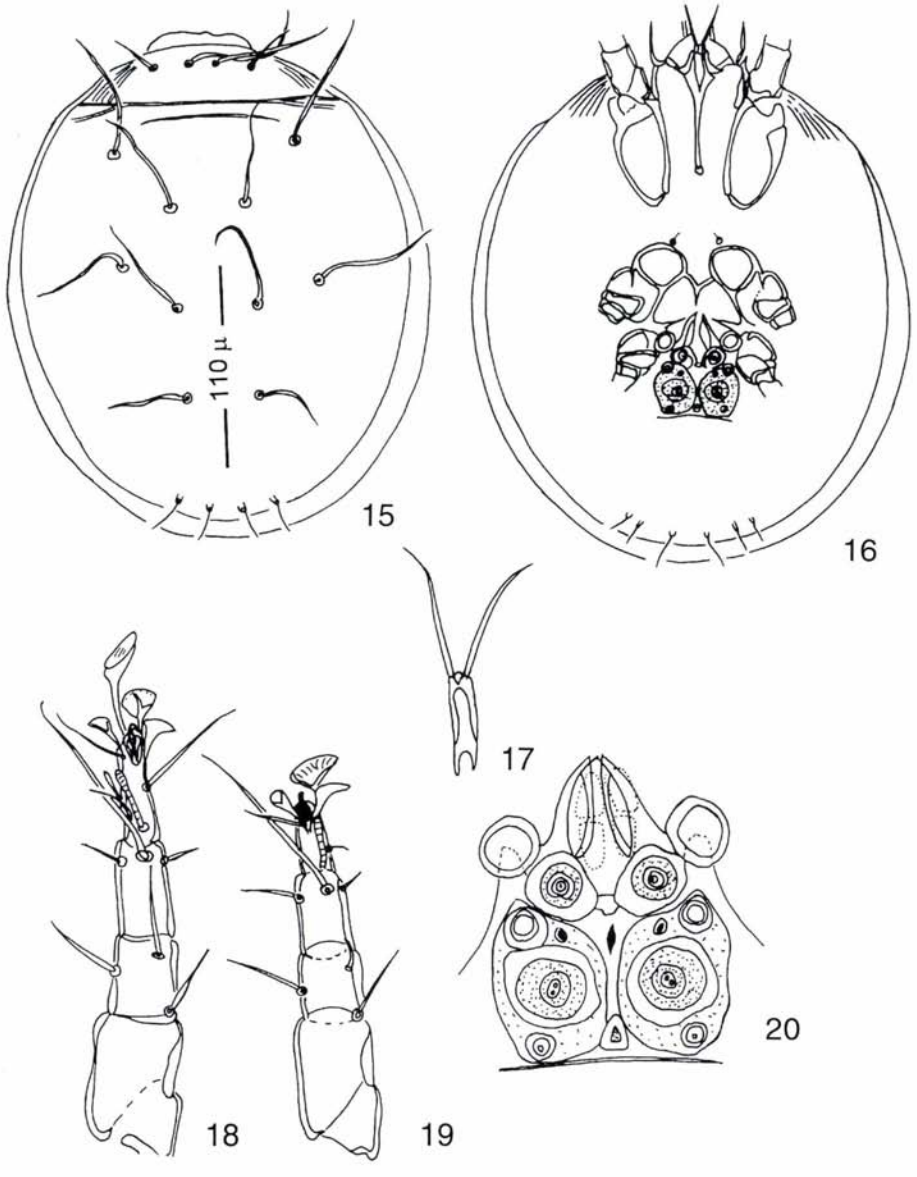
**Acotyledon longsetoses** sp. n.
(Figs 15–20)

*Measurements.* Length: 275–292 µm, width: 222–234 µm.

*Description. Dorsal side* (Fig. 15). Body approximately elongate ovoid in shape, dorsal surface smooth. Dorsosejugal region narrow, without any sculpture. Propodosoma comparatively short, both pairs of propodosomal setae long and thick, inner pair longer, standing somewhat anteriorly to outer one. Hysterosoma with 5 pairs of long and thick setae, longer than those of propodosoma, and 2 pairs of short and thin setae originating near the posterior body margin. – *Ventral side* (Fig. 16). Infracapitulum of gnathosoma (Fig. 17) oblong, long and narrow. Palpi scarcely separated, solenidia long, infracapitular setae missing. Apodemes thick and short, ap. sa ending freely. Epimeres of anterior sternal plate open, apodemes 2 fused posteriorly with sejugal apodemes. Apodemes on posterior sternal plate short, ending free. Anterior sternal plate removed from the posterior one. Epimeres 1 without any sculpture, epimeres 3 with short and simple setae and a pair of large disks standing near primordium of genital opening. Adhering plate (Fig. 20) large, removed from the posterior body end. Disks D1 large, standing anteriorly to a very large D2, Disks D4 and Ds2 reduced. – *Legs* (Figs 18–20). Leg I with long and spoon-shaped adhering setae, no true adhering setae present on leg II, both legs with 3 large calyciform setae and very short claws. Solenidia j1 of legs I and II very long, longer than entire tarsi of both legs, solenidia w1 of the two legs shorter and thicker than j1. Solenidium d1 of genu on leg I long, longer than entire genu, shorter on leg II.

*Material examined*: Holotype and one paratype are extracted from nests of *Amitermes desertorum* (DESNEUX, 1902) infesting camphor trees, Botanical Island, Aswan, Egypt, leg. S. A. ERAKY, 12.04.1998. Holotype is deposited in the Plant Protection Department, Faculty of Agriculture, Assiut University, Assiut, Egypt. One paratype is deposited in the Arachnoidea Collection of the Hungarian Natural History Museum, Budapest, Hungary.

*Remarks.* According to the shape of its dorsal setae, the unique course of apodemes, the structure of adhering plate and the structure and chaetotaxy of legs I and II, the new species can easily be separated from all related congeners of *Acotyledon* OUDEMANS, 1903 described by ERAKY (1998), MAHUNKA (1961, 1978) and SAMSINAK (1957).

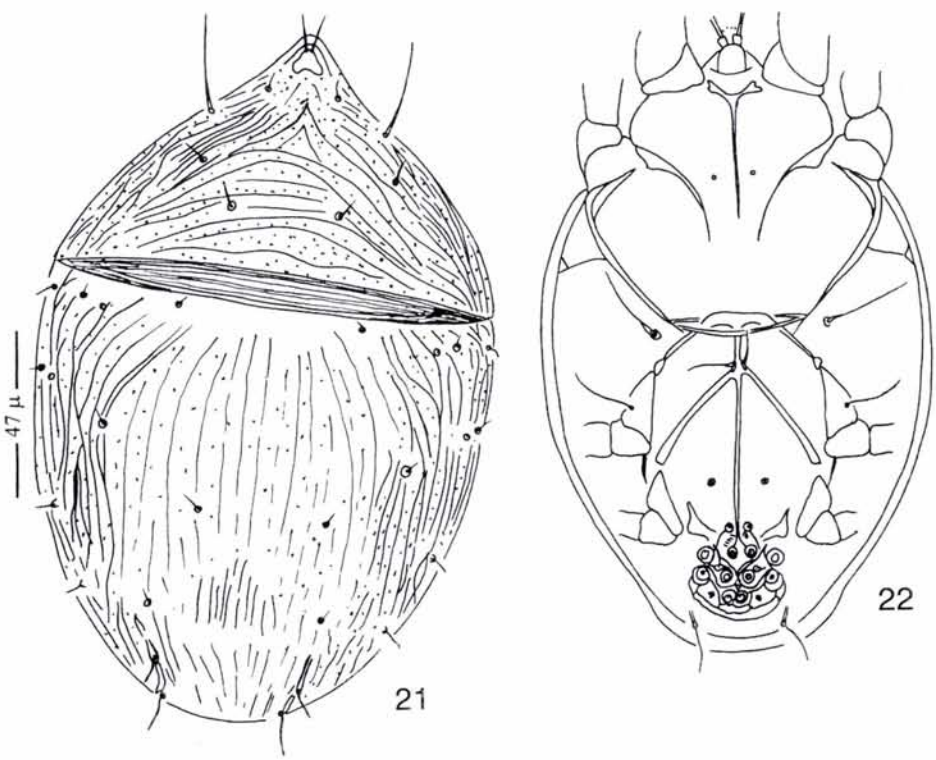



**Figs 15–20.** *Acotyledon longsetoses* sp. n. (Deutonymph): 15 = dorsal side, 16 = ventral side, 17 = gnathosoma, 18 = leg I, 19 = leg II, 20 = adhering plate

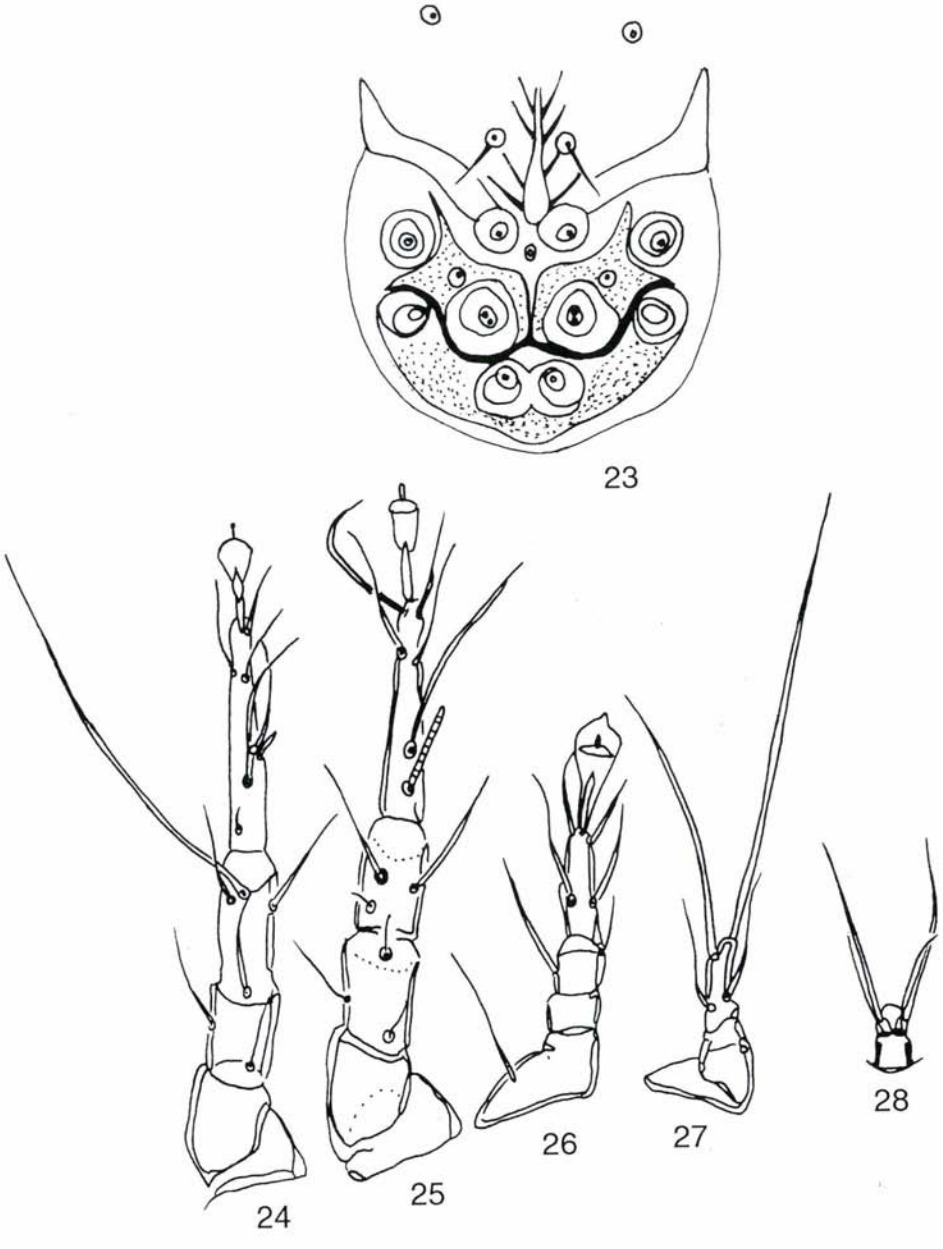
**Calvolia solimani** sp. n.
(Figs 21–28)

*Measurements.* Length: 189–196 μm, width: 124–131 μm.

*Description. Dorsal side* (Fig. 21). Propodosoma anteriorly elongated, approximately triangular in outline. Propodosoma longer than the half length of hysterosoma. Setae vi long and thick, ve shorter and thinner, scx much longer. Inner pair of propodosomal setae approximately the same length with the outer one, both short and thin. The latter standing anteriorly of the former. Propodosoma ornamented with punctulae and longitudinal, arcuate lines laterally, punctulae and transversal lines medially. Dorsosejugal region approximately short, ornamented with transversal lines. Hysterosoma with punctulae and longitudinal, arcuate lines. Hysterosomatic setae thin and short, some hardly visible, only alveoli present. – *Ventral side* (Fig. 22). Infracapitulum of gnathosoma (Fig. 28) somewhat longer than wide, palpi well discernible, infracapitular setae, long and thin, approximately more than than half length of the very long solenidia. Epimeres on anterior sternal plate open, ap. sa and ap. 2 short, not reaching arc of sejugal apodemes, ap. 3 and sejugal ones well separable. Posterior sternal plate with well developed apodemes, ap. 4 fused medially with posterior sternal apodeme, the latter touching posteriorly primordium of genital opening. Epimeres 1 with alveoli, epimeres 3 bearing no sculpture, except a pair of long setae originating in front of ap.4. Epimeres 4 with long setae adjacent to a comparatively tree-shaped primordium of genital opening.




**Figs 21–22.** *Calvolia solimani* sp. n. (Deutonymph): 20 = dorsal side, 21 = ventral side




**Figs 23–28.** *Calvolia solimani* sp. n. (Deutonymph): 23 = adhering plate, 24 = leg I, 25 = leg II, 26 = leg III, 27 = leg IV, 28 = gnathosoma

Adhering plate (Fig. 23) normal, originating not far from the posterior body margin, all disks D clearly recognizable, disks Ds missing, excepting Ds1. – *Legs* (Figs 24–27). Legs generally well developed, all legs with claws, except leg IV clawless. Solenidia j1 on tarsus of leg I very long, much longer than entire tarsus, solenidia w1 of tarsus of leg I much shorter than w2 and w3. Solenidia j1of tarsus of leg II approximately short and thin, w1 thicker, but shorter than w3.

*Material examined*: Holotype and 2 paratypes are extracted from nests of *Amitermes desertorum* (DESNEUX, 1902) infesting camphor trees, Botanical Island, Aswan, Egypt, leg. S. A. ERAKY, 12.05.1998. Holotype and one paratype are deposited in the Plant Protection Department, Faculty of Agriculture, Assiut University, Assiut, Egypt. One paratype is deposited in the Arachnoidea Collection of the Hungarian Natural History Museum, Budapest, Hungary.

*Remarks*. The new species stands very near to *Calvolia zaheri* ERAKY, 1998 and may be distinguished from it by the following characters:

| *zaheri* ERAKY, 1998 | *solimani* sp. n. |
|---|---|
| Dorsal side ornamented with longitudinal, arcuate, irregular lines, dorsosejugal region without any sculpture. | Dorsal surface ornamented with punctulae, longitudinal, arcuate lines, propodosoma with punctulae and transversal lines medially, dorsosejugal region with heavy transversal lines. |
| Ap.4 standing far anteriorly from ap. sp., the latter short, not reaching primordium of genital opening. | Ap.4 fused anteriorly with ap. sp., the latter long, reaching primordium of genital opening. |
| Epimeres 1 and 3 without any sculpture, epimeres 4 with suction disks and a pair of setae standing beside primordium of genital opening. | Epimeres 1 with alveoli, epimeres 3 without any sculpture, epimeres 4 with a pair of long setae adjacent with primordium of genital opening. |
| Solenidia w1 on tarsus of leg I long and thick, solenidia w1 on tarsus of leg II thin and short, solenidia j1very long and thick. | Solenidia w1 on tarsus of leg I short and thin, solenidia w1 on tarsus of leg II long and thick, solenidia j1 short and thin. |

I dedicate the new species to Prof. Dr. Z. R. SOLIMAN (Cairo University, Egypt), the renown acarologist, for his useful counsels.

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# The oribatid species described by Berlese (Acari)

MAHUNKA, S. and L. MAHUNKA-PAPP

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