Vestnik zoologii, **34**(4–5): 27–35, 2000

УДК 595.42

A REVIEW OF ACARID MITES OF THE TRIBE CALOGLYPHINI (ACARIDAE, ACARIFORMES) WITH DESCRIPTION OF A NEW GENUS AND SPECIES FROM SIBERIA AND RUSSIAN FAR EAST

P. B. Klimov

Institute of Biology and Pedology, Vladivostok, 690022 Russia

Accepted 12 October 1999

Обзор акаридных клещей трибы Caloglyphini (Acaridae, Acariformes) с описанием нового рода и вида из Сибири и Дальнего Востока России. Климов П. Б. — Описан *Mycetosancassania grifolapholiotae* Klimov, gen. et sp. n. (Acariformes, Acaridae), собранный на грибах *Grifola frondosa* и *Pholiota* sp. в Приморском крае и Иркутской обл. (Россия). Впервые зарегистрирован случай заражения акаридных клещей нематодами (*Acrostichus*). Приводятся таблицы для определения родов трибы Caloglyphini (взрослые и гипопусы). Предложено 17 новых комбинаций.

Ключевые слова: Acariformes, Acaridae, Caloglyphini, новый род, новый вид, новые комбинации, Дальний Восток России, Сибирь, Nematoda, Diplogasteroididae.

A Review of Acarid Mites of the Tribe Caloglyphini (Acaridae, Acariformes) with Description of a New Genus and Species from Siberia and Russian Far East. Klimov P. B. — *Mycetosancassania grifolapholiotae* Klimov, gen. et sp. n., new genus and species of acarid mites (Acariformes, Acaridae) collected on fungi *Grifola frondosa* and *Pholiota* sp. from Primorskiy kray and Irkutsk oblast' (Russia) is described. Case of infestation of acarid mites by nematodes (*Acrostichus*) is recorded for the first time. Keys to genera of tribe Caloglyphini are given (adults and hypopi). 17 new combinations are proposed.

Key words: Acariformes, Acaridae, Caloglyphini, *Mycetosancassania grifolapholiotae* gen. et sp. n., new genus, new species, new combinations, Russian Far East, Siberia, Diplogasteroididae, Nematoda.

Introduction

A new genus and species of mycetophagous acarid mites (adults and hypopi) belonging to tribe Caloglyphini was collected by the author in Ussuriyskiy Reserve (Russia, Primorskiy kray) and Siberia (Irkutsk oblast). The new genus is closely related to the genus *Sancassania* Oudemans, 1916 differing mainly by proximal position and spiniform shape of the setae *ba* (tarsi I-II) in adults as in the genus *Rhizoglyphus* Claparède, 1869 (Rhizoglyphinae, Rhizoglyphini). Description of new genus is given below. The terms of body parts and chaeto- and solenidiotaxy of legs are follow Griffiths (1970); nomenclature of idiosomal chaetotaxy is follows Griffiths et al. (1990). All measurements are given in micrometers (μm).

Tribe Caloglyphini Oudemans, 1932

Caloglyphidae Oudemans, 1932 (fam., part.) (cited after Zachvatkin, 1941)
Caloglyphini: Zachvatkin, 1937: 174 (part.); Samšiňák, 1980: 204; Klimov, 1998: 3 (part.)
Acotyledonini Zachvatkin, 1941: 126; F. Türk, E. Türk, 1957: 87. Synonymized with Caloglyphini by Samšiňák (1980)
Caloglyphus-group: Woodring, 1966: 98.

The tribe includes 8 genera and more than 90 species and is world-wide distributed (except Antarctica).

Diagnosis. Adults. Cuticle smooth. Dorsal idiosomal chaetotaxy complete. Idiosomal setae (beside *vi*) smooth. *ve* short, near middle of lateral sides of propodosomal shield. *aa* developed. Chelicera with one seta. Grandjean's organ simple, without accessory part which is fused with body.

Genera included. *Acotyledon* Oudemans, 1903; *Carabidobius* Volgin, 1953; *Cosmoglyphus* Oudemans, 1932; *Ctenocolletacarus* Fain, 1984; *Lowryacarus* Fain, 1986; *Neoacotyledon* Samšiňák, 1980; *Neotropacarus* Baker, 1985; *Sancassania* Oudemans, 1916 (=*Caloglyphus* Berlese, 1923).

Genera incertae sedis. *Lagenoglyphus* Berlese, 1923; *Pachyglyphus* Berlese, 1923.

Species incertae sedis. *Acotyledon lishihmeii* Samšiňák, 1961; *Acotyledon volgini* Zachvatkin, 1941; *Acotyledon calcis* Rupes, 1966; *Caloglyphus feytaudi* Oudemans, 1928.

New combinations. Since the genus *Caloglyphus* was sinonymyzed with *Sancassania* by Samšiňák (1960) and the genus *Acotyledon* is treated here in the sense of Samšiňák, 1980, new combinations are proposed for the following species: *Carabidobius bartheli* (F. Türk et E. Türk, 1957), **comb. n.** (from *Caloglyphus*); *Carabidobius bifurcatus* (Mahunka, 1973), **comb. n.** (from *Caloglyphus*); *Carabidobius regleri* (F. Türk et E. Türk, 1957), **comb. n.** (from *Caloglyphus*); *Cosmoglyphus distantsis* (Ashfaq et Chaudhri, 1986), **comb. n.** (from *Acotyledon*); *Cosmoglyphus falki* (Sher et Ashfaq, 1986), **comb. n.** (from *Acotyledon*); *Cosmoglyphus haripuriensis* (Ashfaq, Sher et Chaudhri, 1990), **comb. n.** (from *Acotyledon*); *Cosmoglyphus hyper* (Ashfaq et Chaudhri, 1986), **comb. n.** (from *Acotyledon*); *Cosmoglyphus infaustus* (Ashfaq et Chaudhri, 1986), **comb. n.** (from *Acotyledon*); *Cosmoglyphus limbata* (Mahunka, 1974), **comb. n.** (from *Acotyledon*); *Cosmoglyphus memphiticus* (Sevastianov et Rady, 1991), **comb. n.** (from *Acotyledon*); *Cosmoglyphus moshtohorenis* (Sevastianov et Rady, 1991), **comb. n.** (from *Acotyledon*); *Cosmoglyphus pytho* (Ashfaq et Chaudhri, 1986), **comb. n.** (from *Acotyledon*); *Cosmoglyphus ruditas* (Ashfaq et Chaudhri, 1986), **comb. n.** (from *Acotyledon*); *Cosmoglyphus stremma* (Ashfaq et Chaudhri, 1986), **comb. n.** (from *Acotyledon*); *Cosmoglyphus tariqii* (Ashfaq, Sher et Chaudhri, 1990), **comb. n.** (from *Acotyledon*); *Cosmoglyphus thosmos* (Ashfaq et Chaudhri, 1986), **comb. n.** (from *Acotyledon*); *Neoacotyledon sokolovi* (Zachvatkin, 1940), **comb. n.** (from *Acotyledon*).

The following key is based upon the papers by Ashfaq et al. (1990); Cunliffe (1964); Fain (1984, 1986); Fain, Philips (1978); Lombert et al. (1982); Mahunka (1973, 1974); Rupes (1967); Samšiňák (1960; 1961; 1966; 1980); Sevastianov, Rady (1991); Türk, Türk (1957) and Zachvatkin (1937, 1941). Adults of *Ctenocolletacarus* were described by Fain, Houston (1986).

Key to genera and species incertae sedis

Таблица для определения родов и видов incertae sedis

Adults (not known for *Carabidobius* and *Lowryacarus*)
Взрослые особи (для *Carabidobius* и *Lowryacarus* неизвестны)

1 (6). h_3 at level of hind end of anus or anteriorly (female).

2 (5). ω_1 clavate. *ad* developed (female). Anal suckers developed (male).

3 (4). *scx* bifurcate. *ba* slightly widened, needle-like. *si* and d_1 long; d_1 similar in length with e_1; *si* slightly shorter *se*. Anus almost reaching hind end of hysterosoma. Proximal ends of epimeres III and epimerites II near each other (female). Slovakia. Nests of *Citellus* (*Citellus*) *citellus* Linnaeus, 1766 and *Microtus* (*Pitymys*) *subterraneus* Selys-Longchamps, 1836 (Rodentia, Cricetidae). ..... *Acotyledon calcis* Rupes, 1966.

4 (3). *scx* simple, smooth or barbed. *ba* setiform. *si* and d_2 short; *si* considerably shorter *se*, d_1 considerably shorter e_1. Anus far from hind end of hysterosoma. Proximal ends of epimeres III and epimerites II distant from each other (female). ..... *Acotyledon* Oudemans, 1903 and *Neoacotyledon* Samšiňák, 1980.

5 (2). ω_1 setiform, not clavate. *ad* and anal suckers absent. Anus almost reaching hind end of hysterosoma. 1 species. Nearctic, Oriental, Afrotropic and Neotropic Regions. Under leaves of Vitaceae, Fabaceae, Rutaceae, *etc.* ..... *Neotropacarus* Baker, 1985.

6 (1). h_3 considerably posteriorly hind end of anus, near hind end of hysterosoma (female).

7 (10). *ba* setiform or needle-like, far from ω_1. Proximal ends of epimeres III and epimerites II distant from each other (female). Bursa copulatrix without radial sclerotization (female).

8 (9). *scx* lanceolate, barbed laterally. Tarsi IV short. Proximal sucker in proximal half of tarsus (male). 37 species and 1 subspecies. Rotting plants, nests of Formicidae (Hymenoptera) and Isoptera, dung..... ..... *Cosmoglyphus* Oudemans, 1932.

9 (8). *scx* simple, setiform or short and spiniform. Tarsi IV long. Proximal sucker in distal half of tarsus (male). More the 40 species. Word-wide distributed (except Antarctica). Rotting plants, fungi, stored food, some associated with scarabaeid beetles, or pseudoparazites on mammals, *etc.*..... ..... *Sancassania* Oudemans, 1916.

10 (7). *ba* massive, spiniform, near ω_1. Proximal ends of epimeres III and epimerites II near each other. Bursa copulatrix with radial sclerotization (female). (−) Tarsi IV short. Proximal sucker in proximal half of tarsus (male). 1 species. Siberia, south of Russian Far East. Mycetophagous. ..... *Mycetosancassania* gen. n.

Hypopi (not known for *Neotropacarus*)
Гипопусы (для *Neotropacarus* неизвестны)

1 (2). Anal disk represented by rounded in outline fold, without sclerotized paired shields; ad_1 at sides of anus; ad_{1+2} posteriorly ad_i; rudiments of ps_1 and ps_2 posteriorly ad_{1+2}; other elements of disk reduced. *aa* spiniform. *e* short, shorter than claw length, setiform, without "saucer". *g* represented by alveoli. (−) Gnathosoma short, basal palpomer shorter than its width, without setae. *1a*, *3b*, *4a* reduced. Coxal field II not touching each other. Coxal field II-IV not enclosed. 2 species. Holarctic. Nests of birds and mammals, stored food, rotting plants, associated with Carabidae, Scarabaeidae..... *Acotyledon* Oudemans, 1903.

2 (1). Anal disk well-developed; sclerotized paired shields and conoids ps_1, ps_2 developed. *aa* setiform. *e* longer than claw length, setiform or with "saucer". *g* setiform.

3 (4). Anal disk longitudinal (length longer than width). ps_2 posteriorly ad_{1+2} level, slightly anteriorly ps_1; distance between ps_1 and ps_2 shorter than diameter of ps_2. (−)*1a*, *3b*, *4a* very small. Coxal fields II far from each other. 2(3) species. Holarctic and Afrotropic. Stored food..... *Neoacotyledon* Samšiňák, 1980.

4 (3). Anal disk transverse (length shorter than width). ps_2 anteriorly hind edge of ad_{1+2} level, clearly anteriorly ps_1; distance between ps_1 and ps_2 much more than diameter of ps_2.

5 (8). Hind border of sternal shield distinct, homogenous, not crossing with sternum or epimerae II.

6 (7). Proximal ends of sternum and epimerae II usually at same transverse level near hind edge of sternal shield. Genua IV (sometimes III) enlarged. Tibiae IV approximately equal with tibiae III. Anal disk small (width shorter than width of hind edge of ventro-genital shield); distance between disk and hind end of hysterosoma more than 1.5 times longer its length. Ventrum whole. ..... *Cosmoglyphus* Oudemans, 1932.

7 (6). Proximal end of sternum anteriorly proximal ends of epimerae II; ends of sternum and epimerae II far from hind edge of sternal shield. Genua IV not enlarged. Tibiae IV 1.2 times longer than tibiae III. Anal disk large (width longer than width of hind edge of ventro-genital shield); distance between disk and hind end of hysterosoma less than 1.5 times longer its length. Ventrum consist of 2 apodemes. 1 species. Australia. Troglocolous. ..... *Lowryacarus* Fain, 1986.

8 (5). Hind border of sternal shield consist of clearly separated parts (hind edges of coxal field I and II, or only latter).

9 (12). Proximal end of sternum and epimerae II approximately at same transverse level near hind edge of sternal shield.

10 (11). Rostrum enlarged or of medium sizes. *vi* more or less widened, placed dorsally at tip of rostrum. Anal disk near hind edge of hysterosoma. 3 species. Australia. Associated with *Ctenocolletes* spp. (Hymenoptera, Stenotritidae). ..... *Ctenocolletacarus* Fain, 1984.

11 (10). Rostrum absent. *vi* simple, placed ventrally at tip of camerostom. Distance between anal disk and hind edge of hysterosoma more 1.5 times longer than disk length... *Acotyledon lishihmeii* Samšiňák, 1961 (China, ex Isoptera); *Acotyledon volgini* Zachvatkin, 1941 (Palaearctic); *Caloglyphus feytaudi* Oudemans, 1928 (Western Palaearctic, ex Isoptera).

12 (9). Proximal end of sternum anteriorly proximal ends of epimerae II; both elements (or sternum only) distant from hind edge of sternal shield.

13 (14). Inner ends of epimerae II form 2 parallel apodemes which placed near each other. Sternum located before this place. *4a* elongate, transverse. ..... *Mycetosancassania* gen. n.

14 (13). Inner ends of epimerae II distant from each other; if near, then not form 2 parallel apodemes. *4a* rounded or setiform.

15 (16). Cuticle posteriorly anal disk with radial sculpture. Inner boundaries of coxal field fused. *si* posteriorly *se*. Distal ends of free palpomeres or palpomeres itself turned back outerly. 5 species. Palaearctic, Afrotropic. Ex Carabidae. ..... *Carabidobius* Volgin, 1953.

16 (15). Cuticle posteriorly anal disk without radial sculpture. Inner edges of coxal field more or less separated. *si* anteriorly *se*. Free palpomeres or its distal ends parallel. ..... *Sancassania* Oudemans, 1916.

Mycetosancassania Klimov, gen. n.

Type species: *Mycetosancassania grifolapholiotae* Klimov, sp. n.

Species included. Monotypic.

Adults. scx short, spiniform. si and d_1 short, considerably shorter than se. Anus shifted anteriorly from hind end of hysterosoma. h_3 considerably posteriorly anus, near hind edge of body in female. Proximal ends of epimeres III and epimerites II near each other. Bursa copulatrix in female with radial sclerotization. Tarsi I–IV short. ba I–II massive, spiniform,

near ω_1. Proximal tarsal sucker in proximal half of tarsus in male. Only homeomorphic males are recorded.

Hypopi. Gnathosoma elongate. Rostrum moderately developed. Idiosomal setae short, simple. Hind edge of sternal shield consist of 2 parts formed by posterior edges of coxal fields II. Proximal ends of epimeres II near each other, parallel on comparatively long distance. Coxal field III separated, almost touching each other. Ventrum well-developed. Anal disk shifted from hind end of hysterosoma at distance less than its length. 4a transverse, elongate. Chaetotaxy of tibia-genu I–IV represented by smooth spines or setae.

Diagnosis. Mycetosancassania gen. n. is closely related to genus Sancassania (sensu Samšiňák, 1960) but differs in follows (characters of Sancassania in parenthesis): 1) ba I–II spiniform, placed in proximal part of tarsus near ω_1 in all homeomorphic ontogenetic stages (setiform or needle-like, placed paramedially on tarsus, distant from ω_1); 2) proximal ends of epimerites II near proximal ends of epimerae III in adults (distant from each other); 3) bursa copulatrix of female dorsally with characteristic peripheral radial ornament (simple); 4) epimeres II posteriorly sternum in hypopi straight, parallel and near each other (curved, not parallel, distant); 5) conoids 4a narrow, transverse in hypopi (rounded or setiform). The new genus resembles Rhizoglyphus Claparиde, 1869 but differs in having of aa.

Etymology. Generic name is derived from Greek noun μυχησ (fungus) and Sancassania (genus of Acaridae) with the reference to habitats and similarity of new genus.

Mycetosancassania grifolapholiotae Klimov, **sp. n.** (fig. 1–4)

Material. Holotype (marked by ink arrow): ♀— Russia, Primorskiy kray, Ussuriyskiy Reserve, ex *Grifola frondosa* (Dickson ex Fries, 1785) Gray, 1821 (Aphyllophorales, Albatrellaceae), 6.10.1998. Paratypes: 9 ♀ ♂ homeomorphic — same slide, same date as for holotype; 9 ♀ ♂ homeomorphic, 6 hypopi — same data (4 slides); 2 hypopi moult to teleonymphs — same data, litter, between fallen branches of *Quercus mongolica* Fischer ex Turczaninow, 1838 (Fagales, Fagaceae), hollows and pits at base of stem of *Pholiota* sp. [aff. *Ph. lubrica* (Fries, 1821) Signer, 1951] (Agaricales, Strophariaceae), 7.10.1998; 3 hypopi — Russia, Irkutskaya oblast', env. Bratsk, sanitarium «Bratskoe vzmor'e», forest spring, at base of stem of *Pholiota* sp. [aff. *Ph. lubrica*], 19.08.1999; 2 ♂ 2 ♀ 5 hypopi, 29 teleonymphs — Bratsk, 20 km. W. Energetik, mixed forest, at base of stems of 2 *Pholiota* sp. [aff. *Ph. lubrica*], 21.08.1999 (3 slides). Holotype and paratypes are deposited in the Institute of Biology and Pedology, Vladivostok (IBPV).

Female (holotype). Total length 794.9. Chelicerae 137.9. Infracapitulum 130.5×60.3–100.9. Dorsomedial setae of infracapitulum base spiniform and elongate; base of infracapitulum ventrally with 2 pairs of small "windows" of less sclerotized cuticle. Labrum well-developed, acute. Idiosoma 673.8×432.4 [663.2–857.0 (n=11)×411.1–635.9 (n=10) — Primorskiy kray; 558.3×325.2–576.7×343.6 (n=2) — Siberia]. Grandjean's organ weakly arched, flattened, at tip corolla-like, with 3–4 denticles. *scx* very short, spiniform (bullet-shaped). Propodosomal shield irregularly rectangular, 126.8×103.4 (anteriorly) — 97.7 (minimal width) — 125.6 (posteriorly), not protruding *se* level. *ve* needle-shaped, very short. *si* posteriorly of *se* level. Idiosomal setae flattened, «rigid», length: *vi* 73.9, *si* 8.6, *se* 227.3, c_1 8.6, c_2 15.5, c_3 17.2, *cp* 167.7, d_1 17.2, d_2 18.0, e_1 56.6, e_2 17.7, f_2 32.0, h_1 136, h_2 149.1, h_3 161.5. Anus 168.1; distance from it anterior end to genital apparatus 49.1, from posterior end to hind edge of hysterosoma 101.8. Distance between some setae: *si-si* 68.9, *se-se* 177.3, c_1-c_1 189.6, d_1-d_1 103.4, e_1-e_1 152.2, h_1-h_1 123.1. ps_3 at 0.4, ps_2 at 0.65, ps_1 at 0.85 of anus length from it anterior end. ad_3 considerable anteriorly ps_3; ad_2 and ad_3 between ps_2 and ps_1 (near to ps_1). Genital papillae 35.7×17.2–11.1 (anterior), 34.7×17.5–12.3 (posterior), elongate. Bursa copulatrix oval (dorsal view), with radial marginal processes and 2 chitinized envelops; inner envelop (64.0×36.9) smooth, outer one (81.2×56.6) produce outerly 18 aforementioned processes. Sclerites of oviducts "U"-shaped. Copulatory pore terminal. Channel of bursa copulatrix curved. Ends of epimerites II near proximal ends of epimerae III. Length of legs I–IV (without and with claw): 236.0–252.1, 227.3–248.4,195.0–208.7, 223.6–237.2. Distance between anus (155.1) and hind ends of body 98.5. Legs are of median size. Tibiae with knife-shaped spines. σ' slightly shorter than σ'', long, longer than corresponding tibia. Diameter of φ at base significantly more than diameter of ω_1. Tarsus I: ω_1 with weakly developed club and weak dilatation in basal 1/3 (as ω_1 II); *ba* massive, spiniform, slightly shorter

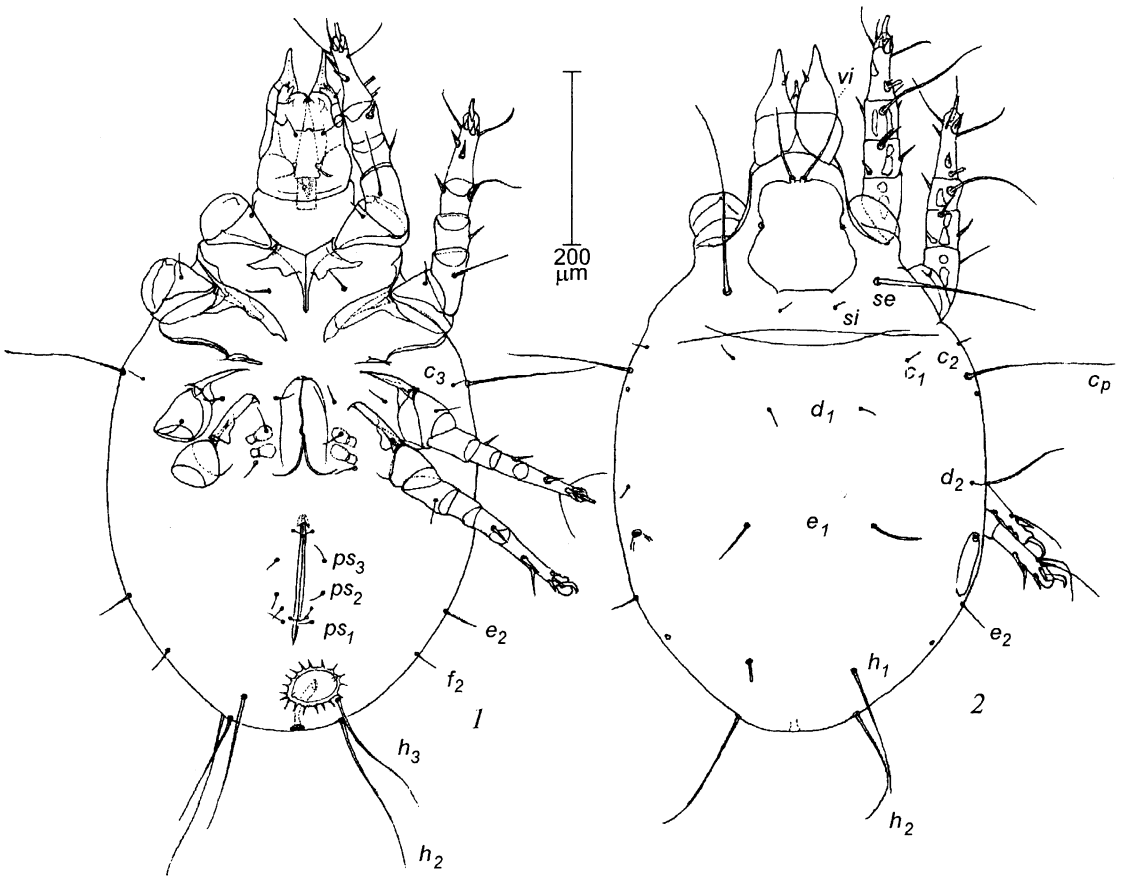

Fig. 1. *Mycetosancassania grifolapholiotae*, ♀ (holotype): *1* — ventral view; *2* — dorsal view.

Рис. 1. *Mycetosancassania grifolapholiotae*, ♀ (голотип): *1* — снизу; *2* — сверху.

than ω_1; ξ slightly shorter than half of ω_1, needle-shaped; ω_2 and *aa* near each other, placed et base of tarsus, significantly proximally than ω_1; *aa* approximately equal to ξ; ω_2 slightly shorter than *aa*; ω_3 reaching proximal end of claw; *wa* and *la* spiniform, *ra* at distal end of tarsus, near *p*, *u* and *s*; *ra* and *f* slightly lanceolate. Formula of legs I–IV: 1–1–2+(2)–2+(1)–13+(3+1), 1–1–2+(1)–2+(1)–12+(1), 1–0–1+(1)–1+(1)–10, 0–1–0–1+(1)–10.

Male (paratype). Total length 801.1. Chelicerae 120.6. Infracapitulum 118.9×39.4–98.5. Idiosoma 695.5×440.9 [623.5–695.5×422.2–440.9 (n=2) — Primorskiy kray; 417.2×326.4–568.1x (-) (n=2) — Siberia]. Propodosomal shield 126.6×88.6–76.3–105.9. *vi* 97.7, *si* 19.0, *se* 229.8, c_1 17.2, c_2 15.8, c_3 24.6, *cp* 183.8, d_1 22.2, d_2 24.6, e_1 76.3, e_2 69.9, f_2 36.9, h_1 186.3, h_2 190.0, h_3 155.3, ps_1 25.4, ps_2 24.6, ps_3 23.4; *si-si* 67.2, *se-se* 153.9, d_1-d_1 115.7, e_1-e_1 151.1, h_1-h_1 147.7, h_3-h_3 113.3, ps_1-ps_1 39.4, ps_2-ps_2 101.7, ps_3-ps_3 71.4, ps_1-ps_2 80.0, ps_2-ps_3 71.4, ps_1-h_3 14.5. Genital papillae 32.0×17.2–13.5 (anterior), 34.5×18.7–11.8 (posterior). Atrium 75.6×32.7, approximately of equal width at full length. Genital apparatus comparatively small, oval in outline, 39.4×36.9, placed at posterior half of atrium; penis short (27.1×1.9–6.1), narrowed toward apex, reaching not more than half of length of atrium. Anal suckers 49.2×36.3 (maximal dimensions), slightly protruding posteriorly from hind end of anus, distance between them 19.4 and between they lateral edges 99.3. ps_3 not clearly widened; suckers with numerous small, dot-like sclerites in region of ps_3. Central sclerites of anal suckers small, brown, with central orifice and very small radial ones. *ih* anteriorly ps_2 level. *ps* short. ps_2 shifted from hind edge of anal suckers at the same distance as from ps_1. ps_1 slightly anteriorly h_3 level. Legs I–IV (without and with claw): 248.4–265.8, 239.7–255.9,

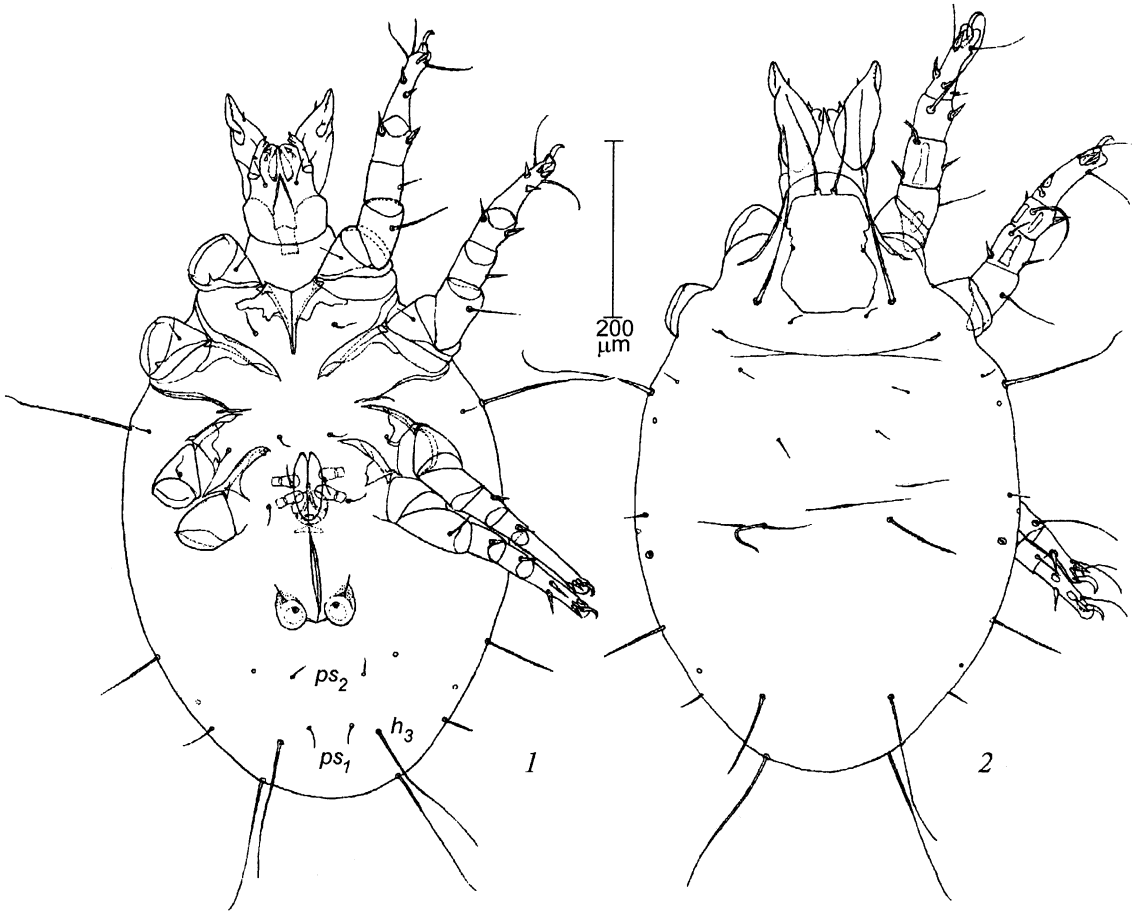

Fig. 2. *Mycetosancassania grifolapholiotae*, ♂: *1* — ventral view; *2* — dorsal view.

Рис. 2. *Mycetosancassania grifolapholiotae*, ♂: *1* — снизу; *2* — сверху.

218.6–257.1, 227.3–240.9. Tarsal suckers at equal distance from tarsus ends; tarsi IV short, shorter than length of tibia+genu IV.

Hypopus (paratype). Surface smooth. Gnathosoma 39.4×9.4–14.8, elongate, with lateral sides gradually narrowed to apex; free palpomeres distinctly two-segmented; anterior and posterior gnathosomal setae almost equal in length (10.1), anterior setae more widened than posterior ones; posterior setae slightly anteriorly of half of gnathosoma, near its lateral sides; aristae 49.2. Idiosoma 333.8×290.5 [310.5–428.5 (n=6)×252.0–290.5 (n=4) — Primorskiy kray; 308.0–380.4×260.1–319.0 (n=6) — Siberia]. Propodosoma 53.2; rostrum well-developed, triangular; *ve* short, placed at sides of rostrum; *si* slightly anteriorly *se* level; all propodosomal setae beside *scx* placed on propodosomal shield. *scx* (32.0) setiform, geniculate. Hysterosoma with complete chaetotaxy. Sternal shield 108.3×169.9. Sternum 54.2. Epimeres II at angle of approximately 45° to median body line, 61.6 (measured before fusion). Posterior edge of sternal shield 81.2, slightly concave. There is short distance between sternal and ventral shields. Ventro-genital shield 96.0×96.0, with slightly convex anterior edge. Coxal field III almost touching each other at distance 27.1. Ventrum 61.6. *1a* 4.9, *3b* 5.2, *4a* 44.3×4.2. *4a* transverse, stick-shaped. Anal shield (46.8×51.7) indistinctly separated from ventral one, shifted from hind hysterosomal edge approximately at 3/4 of its length. ps_1 8.6, ps_2 7.4, both brown; ps_2 at half of ad_{1+2} level; alveoli of ad_{1+2} placed on single sclerite; ad_{1+2} 13.3; ad_3 12.3; fore cuticular conoids 10.1×8.6, hind 18.5×12.3 and unpaired hind one 12.3×8.6. *ih* comparatively large, distant from anal disk. Legs I–II: 129.3–143.3, 115.7–126.8 (without and with claw). Tarsi I–II longer than corresponding tibia+genu.

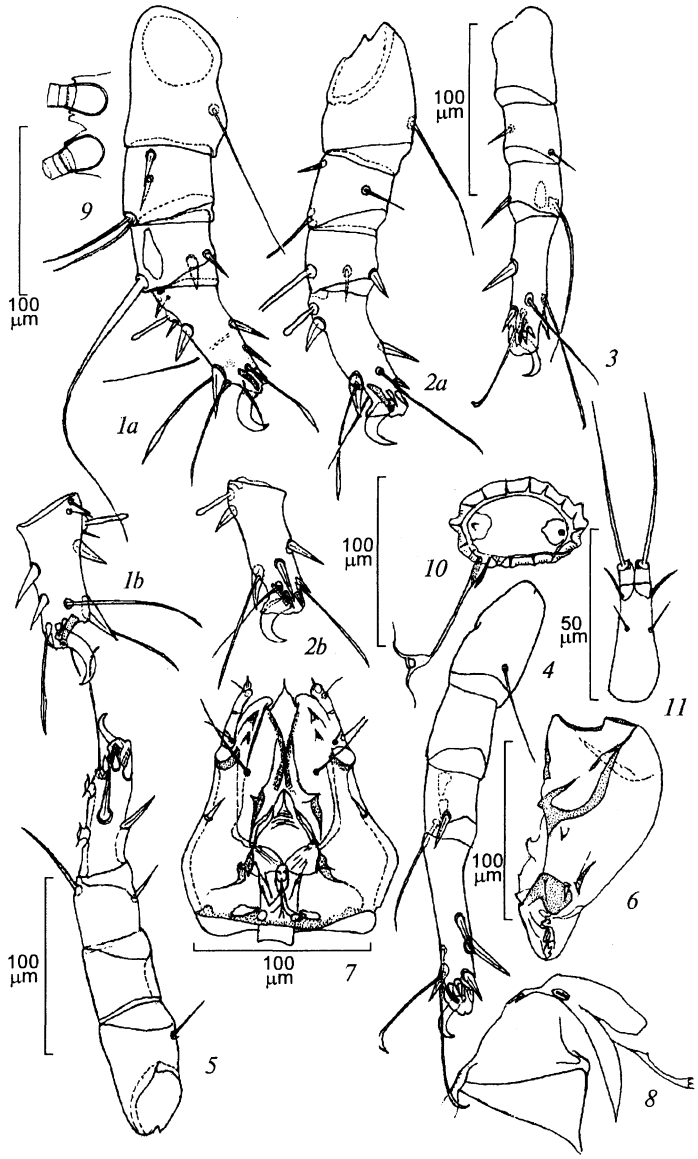

Fig. 3. *Mycetosancassania grifolapholiotae*, ♀ (*1–4*, *6–10*), ♂ (*5*), hypopus (*11*): *1–4* — legs I–IV; *1b*, *2b* — tarsi I, II; *5* — leg IV; *6* — chelicera; *7* — infracapitulum; *8* — Grandjean's organ; *9* — genital papillae; *10* — bursa copulatrix; *11* — gnathosoma.

Рис. 3. *Mycetosancassania grifolapholiotae*, ♀ (*1–4*, *6–10*), ♂ (*5*), гипопус (*11*): *1–4* — ноги I–IV; *1b*, *2b* — лапки I, II; *5* — нога IV; *6* — хелицера; *7* — инфракапитулюм; *8* — орган Гранжана; *9* — генитальные папиллы; *10* — копулятивная бурса; *11* — гнатосома.

Tarsus I: ω_1 with weakly developed club; ω_3 in proximal 1/4 of tarsus, approximately 2 times longer than ω_1; ω_2 at tarsal base, proximally ω_1; *aa* distally ω_2, but not far from level of ω_3 base, long, reaching *ra* level; ξ internally ω_1, more than half of it length; *wa*, *ra*, *la* near each other, approximately at middle of tarsus; *la* longer than *ra*; *q* clearly shorter than *p*, protruding tip of claw; *e* with developed "saucer". *hT* and *gT* I–II spiniform. ω_1 II with clear dilatation near base and well-developed club. σ I with acute tip, σ II with clearly rounded tip. *q* III–IV with distinct dilatation at base, *d* III–IV not longer than tarsus. Formula of legs I–IV: 1–1–2+(1)–2+(1)–9+(3+1), 1–1–2+(1)–2+(1)–9+(1), 1–0–1–1+(1)–8, 0–1–0–1+(1)–8.

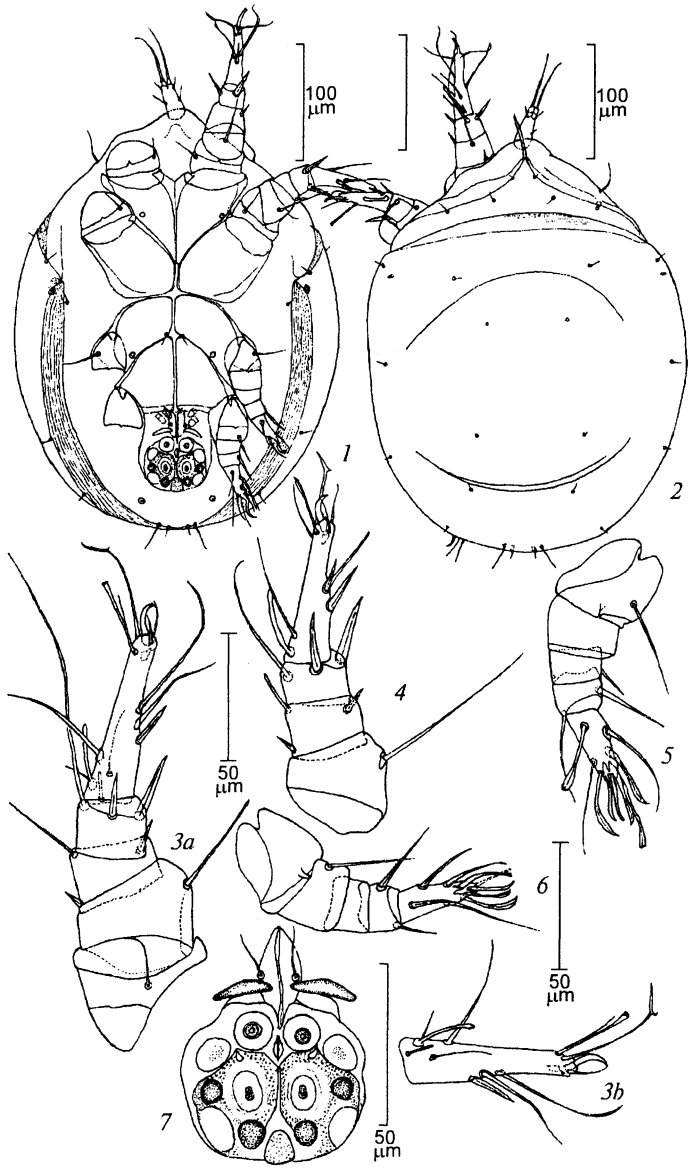

Fig. 4. *Mycetosancassania grifolapholiotae*, hypopus: *1* — ventral view; *2* — dorsal view; *3–6* — leg I–IV; *3b* — tarsus I; *7* — anal disk.

Рис. 4. *Mycetosancassania grifolapholiotae*, гипопус: *1* — снизу; *2* — сверху; *3–6* — ноги I–IV; *3b* — лапка I; *7* — анальный диск.

Diagnosis. See above under the description of genus. Poorly-described *Sancassania mycophagus* (Мйgnin, 1874) (non auct.) has spiniform *ba* likes *M. grifolapholiotae* but distant from ω_1 (near ω_1 in *M. grifolapholiotae*). It is noteworthy that *S. mycophagus* inhabits fungi (Мйgnin, 1874, cited from Zachvatkin, 1941).

Etymology. Specific epithet is derived from generic names of host fungi (*Grifola* and *Pholiota*).

Distribution. Russia: Irkutskaya oblast' (Bratskiy rayon), Primorskiy kray (Ussuriyskiy Reserve) — type locality.

Variations. *aa* and ω_1 lie on the same transverse level, or *aa* distally from ω_1 in adults and hypopi. ad_2 in female placed anteriorly ps_2, at the same level, or posteriorly.

Biology. Large colonies of new species have been found on fungi *Grifola frondosa* in Primorskiy kray and in stems of several *Pholiota* sp. grown on soil in Siberia. Two hypopi have been collected at base of stem of *Pholiota* sp. in Primorskiy kray and put to 40% KOH. Two days later these hypopi were still alive and both successfully moult to teleonymphs. In culture of *M. grifolapholiotae* sp. n. from the samples associated with *Grifola frondosa* were reared drosophilid flies *Drosophila funebris* (Fabricius, 1787) (Diptera, Drosophilidae). The examination of large number of these flies shown that the insects are not a host of the mites. Inside one dead hypopus of the same culture three alive females of nematode *Acrostichus* sp. (Nematoda, Diplogasteroididae) were found (slides in IBPV). Way of invasion is unknown.

Acknowledgements

I thank Dr. E. M. Bulakh (IBPV) for identification of the fungi, Drs A. S. Eroshenko and L. P. Esipenko (IBPV) for identification of the nematode, and Dr. A. S. Lelej (IBPV) for critical reading of the manuscript.

Ashfaq M., Sher F., Chaudhri W. M. Two new (hipopi) species of genus Acotyledon (Acarina: Acaridae) Oudemans from Pakistan // Pakistan J. of Zool. Lahore. — 1990. — **22**. — P. 181–192.

Cunliffe F. Tropacarus, a new genus of Acaridae // Proc. Entomol. Soc. Washington. — 1964. — **66**. — P. 181–183.

Fain A. A new genus of mite (Acari: Acaridae) phoretic on bees (Ctenocolletes) in Australia // Rec. W. Austral. Mus. — 1984. — **11**. — P. 77–86.

Fain A. Deux nouveaux hypopes d'Acaridae (Acari) // Bull. Inst. R. Sci. Nat. Belg. Entomol. — 1986. — **56**. — P. 49–54.

Fain A., Houston T. F. Life cycle stages of mites of the genus Ctenocolletacarus Fain (Acari, Acaridae) associated with *Ctenocolletes* bees in Australia // Rec. W. Austral. Mus. — 1986. — **13**. — P. 67–77.

Fain A., Philips J. R. Astigmatic mites from nests of birds of prey in the U. S. A. 4. Description of the life-cycle of Acotyledon paradoxa Oudemans, 1903 // Zool. meded. Leiden. — 1978. — **53**. — S. 29–39.

Griffiths D. A. A further systematic study of the genus Acarus L., 1758 (Acaridae, Acarina), with a key to species // Bull. Brit. Mus. (Nat. Hist). Zool. — 1970. — **19**. — P. 85–118.

Griffiths D. A., Atyeo W. T., Norton R. A. et al. The idiosomal chaetotaxy of astigmatid mites // J. Zool. London. — 1990. — **220**. — P. 1–32.

Klimov P. B. A new tribe of acarid mites of the subfamily Rhizoglyphinae (Acariformes, Acaridae) // Far East. Entomol. — 1998. — **59**. — P. 1–19.

Lombert H. A. P. M., Lukoschus F. S., OConnor B. M. The life-cycle of Cosmoglyphus inaequalis Fain & Caceres, 1973, with comments on the systematic position of the genus. Results of the Namaquland — Namibia Expedition of the King Leopold III Foundation for the Exploration and Protection of Nature (1980) // Bull. Inst. R. Sci. Nat. Belg. Entomol. — 1982. — **54**. — P. 1–17.

Mahunka S. Auf Insekten lebenden Milben (Acari: Acarida, Tarsonemida) aus Afrika. II // Acta zool. Acad. sci. hung. — 1973. — **19**. — P. 289–337.

Mahunka S. Auf Insekten lebende Milben (Acari: Acarida, Tarsonemida) aus Afrika. IV. // Acta zool. Acad. sci. hung. — 1974. — **20**. — P. 367–402.

Rupes M. A contribution on the genus Acotyledon Oudemans, 1903 (Acarina, Acaridae), with description of two new species: *A.* calcis sp. n. and *A.* samsinaki sp. n. // Věst. Česk. Spol. Zool. — 1967. — **31**. — P. 250–259.

Samšiňák K. Ueber einige myrmekophile Milben aus der Familie Acaridae // Čas. Česk. Spol. Entomol. — 1960. — **57**. — P. 185–192.

Samšiňák K. Die Termitophilen Acari aus China // Čas. Česk. Spol. Entomol. — 1961. — **58**. — P. 193–207.

Samšiňák K. Die Neuerrichtung der Gattung Cosmoglyphus Oudemans 1932, gleichzeitig ein Beitzag zum Problem der "Copra Itch"// Zool. Anz. — 1966. — **176**. — S. 27–42.

Samšiňák K. Caloglyphus rodriguezi sp. n., with taxonomic remarks on the tribe Caloglyphini (Acari, Acaridae) // Mitt. Zool. Mus. Berlin. — 1980. — **56**. — S. 201–206.

Sevastyanov V. D., Rady G. New species of entomophilous mites family Acaridae (Sarcoptiformes) of Lower Egypt fauna // Zoologicheskiy zhurnal. — 1991. — **70**. — P. 133–139. [in Russian]

Türk E, Türk F. Systematik und Ökologie der Tyroglyphiden Mitteleuropas // Beitrage zur Systematik und Ökologie mitteleuropaischer Acarina / Ed. H. J. Stammer. — Leipzig : Academische Vertagsgesellschaft, Geest & Portig K. G., 1957. — **1**, 1. — S. 2–231.

Volgin V. I. Two new genera of tyroglyphid mites (Acarina, Tyroglyphidae) // Entomologicheskoe obozrenie. — 1953. — **33**. — P. 262–265. [in Russian]

Woodring J. P. North American Tyroglyphidae (Acari): II. The genus Schwiebea, with description of four new species // Proc. Louisiana Acad. Sci. — 1966. — **29**. — P. 85–112.

Zachvatkin A. A. Etudes sur les Tyroglyphides I. le groupe Caloglyphini // Uchenye zapiski Moskovskogo gosudarstvennogo universiteta. — 1937. — **13**. — P. 169–202. [in Russian]

Zachvatkin A. A. Tiroglifoidnye kleshchi (Tyroglyphoidea). Fauna SSSR. Paukoobraznye. — **6, 1**. — Moscow; Leningrad : Nauka Publ., 1941. — 475 p. [in Russian]