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## 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

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**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 ( $\mu\text{m}$ ).

### Tribe Caloglyphini Oudemans, 1932

Caloglyphidae Oudemans, 1932 (fam., part.) (cited after Zachvatkin, 1941)

Caloglyphini: Zachvatkin, 1937: 174 (part.); Samsiňák, 1980: 204; Klimov, 1998: 3 (part.)

Acotyledonini Zachvatkin, 1941: 126; F. Türk, E. Türk, 1957: 87. Synonymized with Caloglyphini by Samsiňák (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* Samšičák, 1980; *Neotropacarus* Baker, 1985; *Sancassania* Oudemans, 1916 (= *Caloglyphus* Berlese, 1923).

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

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

New combinations. Since the genus *Caloglyphus* was synonymized with *Sancassania* by Samšičák (1960) and the genus *Acotyledon* is treated here in the sense of Samšičák, 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 distantis* (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 moshtohorensis* (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); Samšičák (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).  $\omega_1$  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 hysterostoma. 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 hysterostoma. Proximal ends of epimeres III and epimerites II distant from each other (female). ..... *Acotyledon* Oudemans, 1903 and *Neoacotyledon* Samšičák, 1980.
- 5 (2).  $\omega_1$  setiform, not clavate. *ad* and anal suckers absent. Anus almost reaching hind end of hysterostoma. 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 hysterostoma (female).
- 7 (10). *ba* setiform or needle-like, far from  $\omega_1$ . 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. World-wide distributed (except Antarctica). Rotting plants, fungi, stored food, some associated with scarabaeid beetles, or pseudoparasites on mammals, etc. .... *Sancassania* Oudemans, 1916.

- 10 (7). *ba* massive, spiniform, near  $\omega_1$ . 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.
- Нуропи (not known for *Neotropacarus*)  
Гипопусы (для *Neotropacarus* неизвестны)
- 1 (2). Anal disk represented by rounded in outline fold, without sclerotized paired shields; *ad*<sub>1</sub> at sides of anus; *ad*<sub>1+2</sub> posteriorly *ad*<sub>i</sub>; rudiments of *ps*<sub>1</sub> and *ps*<sub>2</sub> posteriorly *ad*<sub>1+2</sub>; 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*<sub>1</sub>, *ps*<sub>2</sub> developed. *aa* setiform. *e* longer than claw length, setiform or with “saucer”. *g* setiform.
- 3 (4). Anal disk longitudinal (length longer than width). *ps*<sub>2</sub> posteriorly *ad*<sub>1+2</sub> level, slightly anteriorly *ps*<sub>i</sub>; distance between *ps*<sub>1</sub> and *ps*<sub>2</sub> shorter than diameter of *ps*<sub>2</sub>. (–) *1a*, *3b*, *4a* very small. Coxal fields II far from each other. 2(3) species. Holarctic and Afrotropic. Stored food. .... *Neoacotyledon* Samsiňák, 1980.
- 4 (3). Anal disk transverse (length shorter than width). *ps*<sub>2</sub> anteriorly hind edge of *ad*<sub>1+2</sub> level, clearly anteriorly *ps*<sub>i</sub>; distance between *ps*<sub>1</sub> and *ps*<sub>2</sub> much more than diameter of *ps*<sub>2</sub>.
- 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. Ventrums 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. Ventrums 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* Samsiňák, 1961 (China, ex Isoptera); *Acotyledon volgini* Zachvatkin, 1941 (Palaeartic); *Caloglyphus feytaudi* Oudemans, 1928 (Western Palaeartic, 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. Palaeartic, 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*<sub>1</sub> short, considerably shorter than *se*. Anus shifted anteriorly from hind end of hysterosoma. *h*<sub>3</sub> 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  $\omega_1$ . 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 Samšiniák, 1960) but differs in follows (characters of *Sancassania* in parenthesis): 1) *ba* I–II spiniform, placed in proximal part of tarsus near  $\omega_1$  in all homeomorphic ontogenetic stages (setiform or needle-like, placed paramedially on tarsus, distant from  $\omega_1$ ); 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* Claparède, 1869 but differs in having of *aa*.

Etymology. Generic name is derived from Greek noun  $\mu\upsilon\chi\eta\varsigma$  (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 (Aphylllophorales, 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 vmor'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*<sub>1</sub> 8.6, *c*<sub>2</sub> 15.5, *c*<sub>3</sub> 17.2, *cp* 167.7, *d*<sub>1</sub> 17.2, *d*<sub>2</sub> 18.0, *e*<sub>1</sub> 56.6, *e*<sub>2</sub> 17.7, *f*<sub>2</sub> 32.0, *h*<sub>1</sub> 136, *h*<sub>2</sub> 149.1, *h*<sub>3</sub> 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*<sub>1</sub>-*c*<sub>1</sub> 189.6, *d*<sub>1</sub>-*d*<sub>1</sub> 103.4, *e*<sub>1</sub>-*e*<sub>1</sub> 152.2, *h*<sub>1</sub>-*h*<sub>1</sub> 123.1. *ps*<sub>3</sub> at 0.4, *ps*<sub>2</sub> at 0.65, *ps*<sub>1</sub> at 0.85 of anus length from it anterior end. *ad*<sub>3</sub> considerable anteriorly *ps*<sub>3</sub>; *ad*<sub>2</sub> and *ad*<sub>3</sub> between *ps*<sub>2</sub> and *ps*<sub>1</sub> (near to *ps*<sub>1</sub>). 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.  $\sigma'$  slightly shorter than  $\sigma''$ , long, longer than corresponding tibia. Diameter of  $\phi$  at base significantly more than diameter of  $\omega_1$ . Tarsus I:  $\omega_1$  with weakly developed club and weak dilatation in basal 1/3 (as  $\omega_1$  II); *ba* massive, spiniform, slightly shorter than  $\omega_1$ ;  $\xi$  slightly shorter than half of  $\omega_1$ , needle-shaped;  $\omega_2$  and *aa* near each other, placed et base of tarsus, significantly proximally than  $\omega_1$ ; *aa* approximately

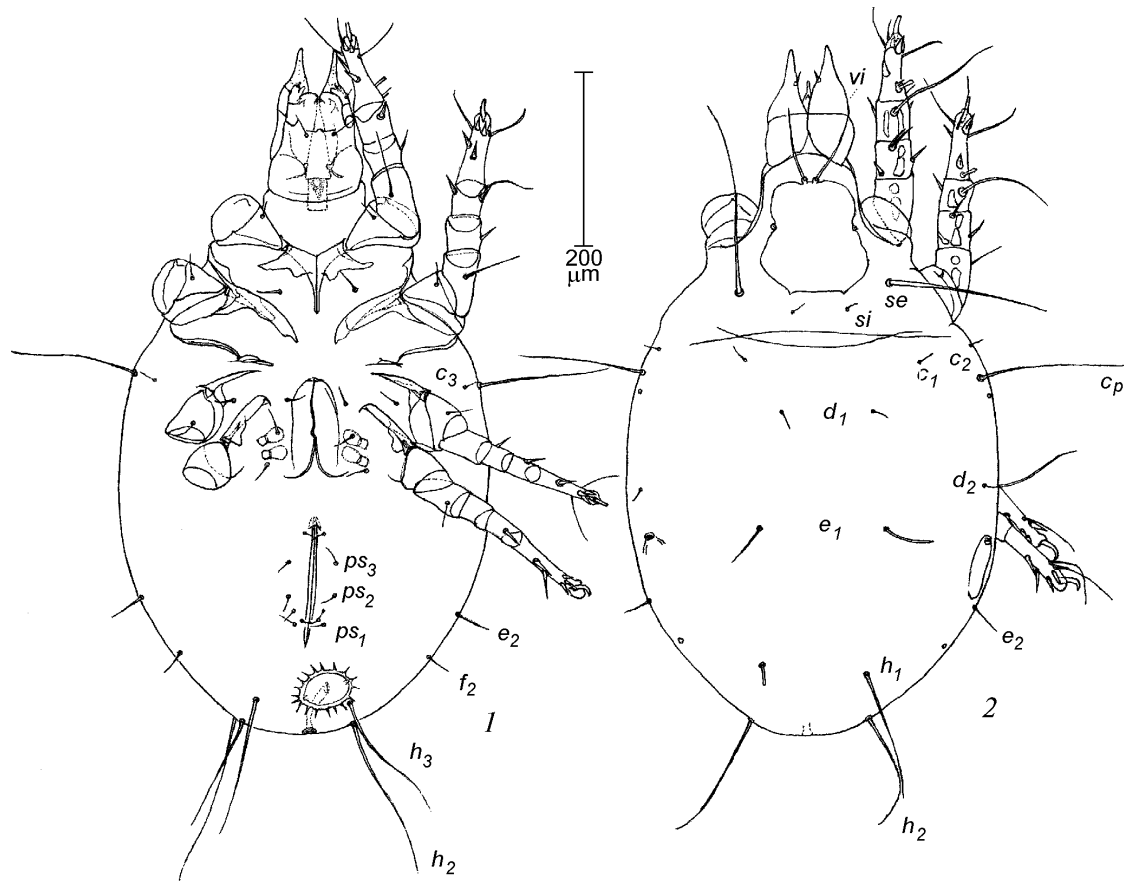


Fig. 1. *Mycetosancassania grifolapholiotae*, ♀ (holotype): 1 — ventral view; 2 — dorsal view.

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

equal to  $\xi$ ;  $\omega_2$  slightly shorter than  $aa$ ;  $\omega_3$  reaching proximal end of claw;  $wa$  and  $la$  spini-form,  $ra$  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,

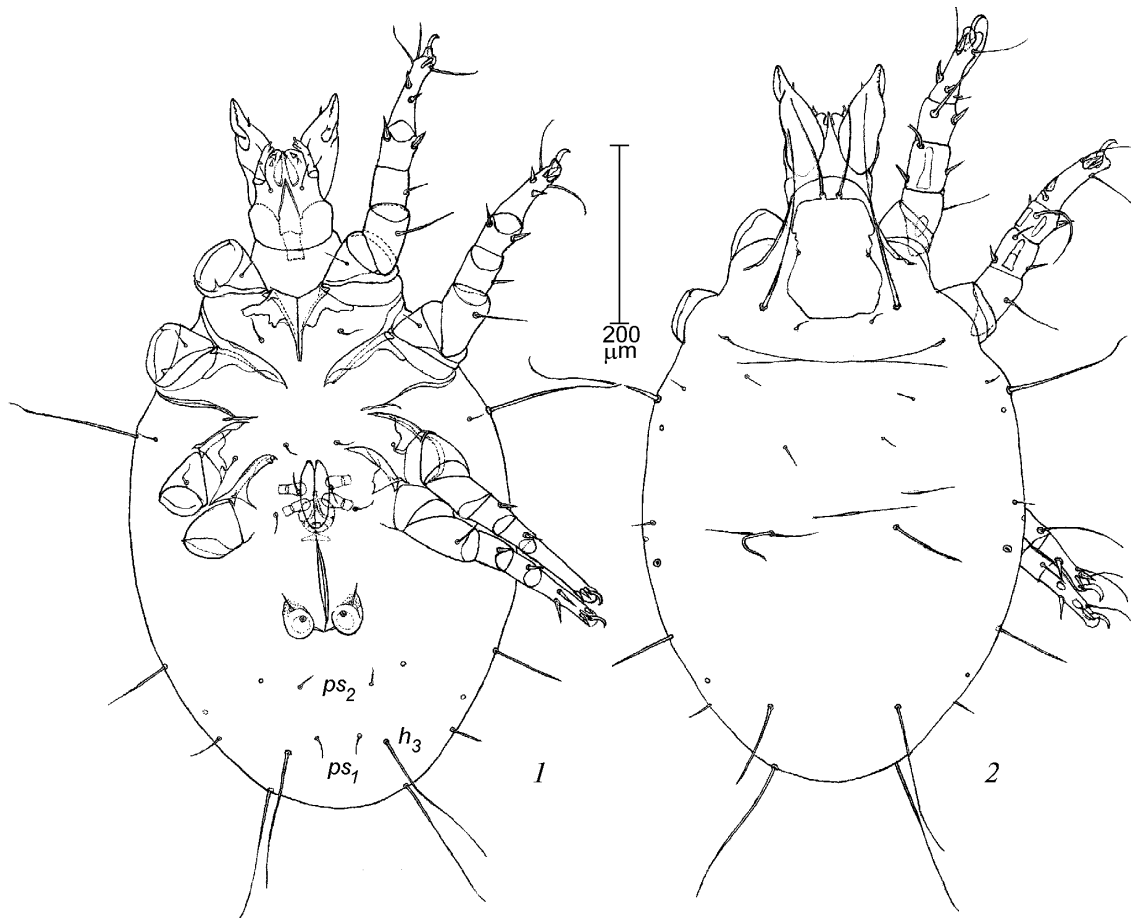


Fig. 2. *Mycetosancassania grifolapholiotae*, ♂: 1 — ventral view; 2 — dorsal view.

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

239.7–255.9, 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; arista 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. *Ia* 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*<sub>1</sub> 8.6, *ps*<sub>2</sub> 7.4, both brown; *ps*<sub>2</sub> at half of *ad*<sub>1+2</sub> level; alveoli of *ad*<sub>1+2</sub> placed on single sclerite; *ad*<sub>1+2</sub> 13.3; *ad*<sub>3</sub> 12.3; fore cuticular conoids 10.1×8.6, hind 18.5×12.3 and unpaired

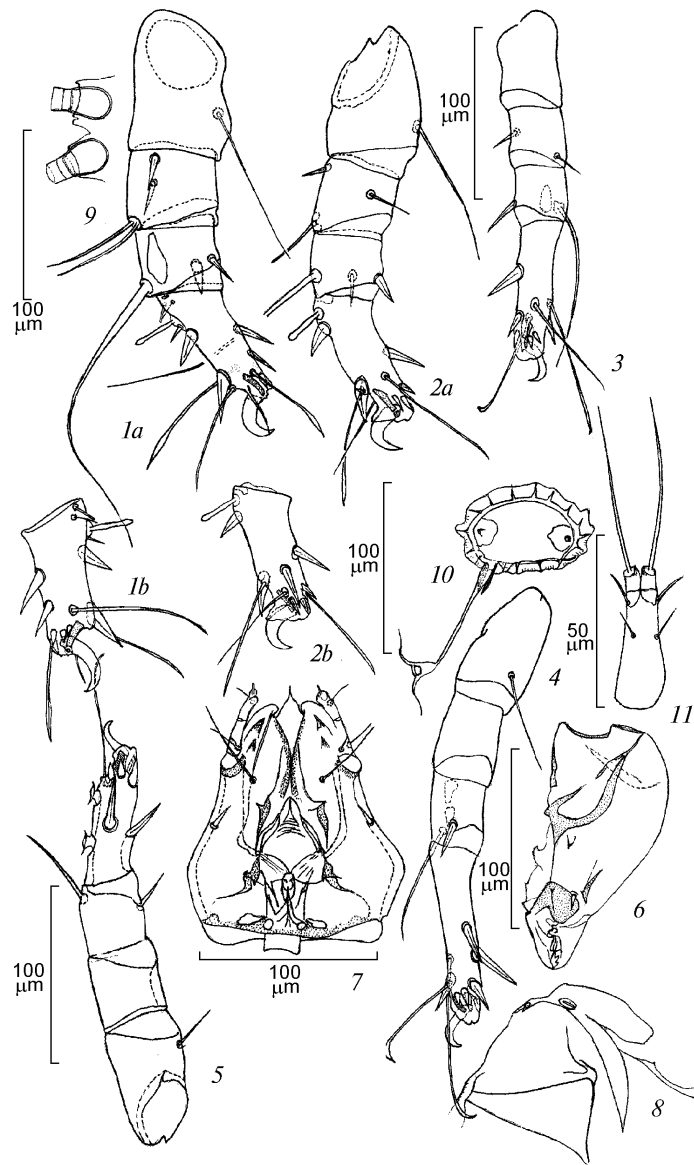


Fig. 3. *Mycetosancassania grifolapholiata*, ♀ (1-4, 6-10), ♂ (5), hypopus (11): 1-4 — legs I-IV; 1b, 2b — tarsi I, II; 5 — leg IV; 6 — chelicera; 7 — infracapitulum; 8 — Grandjean's organ; 9 — genital papillae; 10 — bursa copulatrix; 11 — gnathosoma.

Рис. 3. *Mycetosancassania grifolapholiata*, ♀ (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 bursa; 11 — гнатосома.

hind one  $12.3 \times 8.6$ . *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.

Tarsus I:  $\omega_1$  with weakly developed club;  $\omega_3$  in proximal 1/4 of tarsus, approximately 2 times longer than  $\omega_1$ ;  $\omega_2$  at tarsal base, proximally  $\omega_1$ ; *aa* distally  $\omega_2$ , but not far from level of  $\omega_3$  base, long, reaching *ra* level;  $\xi$  internally  $\omega_1$ , 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.  $\omega_1$  II with clear dilatation near base and well-developed club.  $\sigma$  I with acute tip,  $\sigma$  II with clearly rounded tip. *q* III-IV with distinct dilatation at base, *d* III-IV not longer than tarsus. Formula of

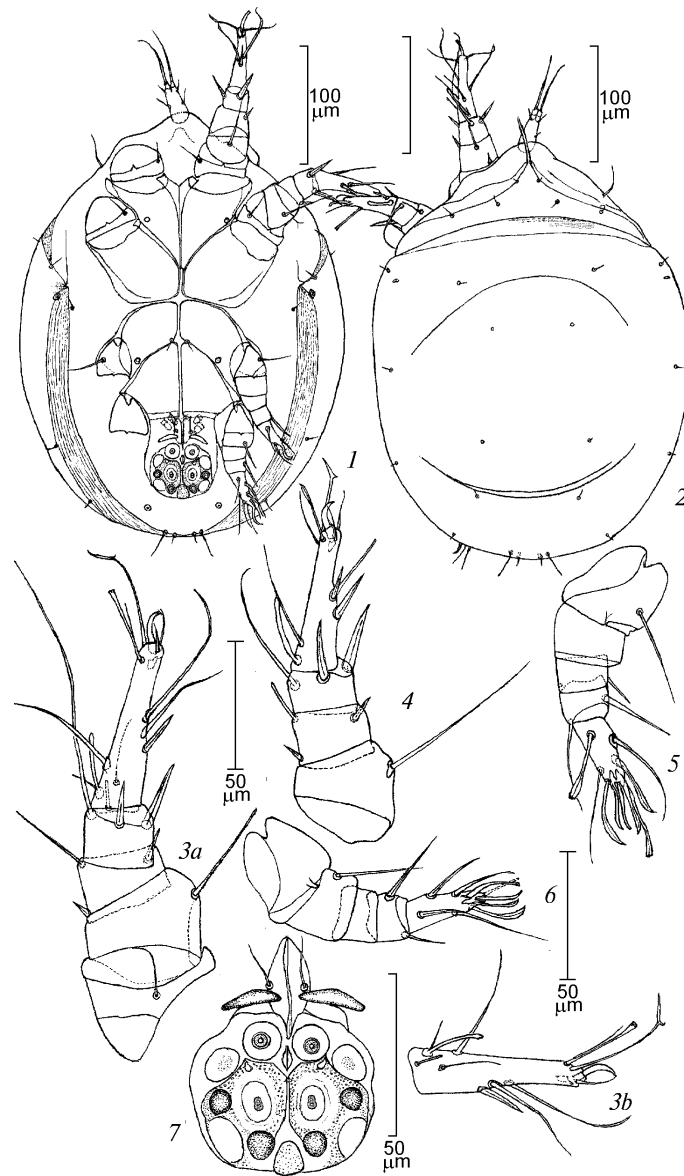


Fig. 4. *Mycetosancassania grifolapholiotae*, hypopus: 1 — ventral view; 2 — dorsal view; 3–6 — leg I–IV; 3b — tarsus I; 7 — anal disk.

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

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.

Diagnosis. See above under the description of genus. Poorly-described *Sancassania mycophagus* (Mjgnin, 1874) (non auct.) has spiniform *ba* likes *M. grifolapholiotae* but distant from  $\omega_1$  (near  $\omega_1$  in *M. grifolapholiotae*). It is noteworthy that *S. mycophagus* inhabits fungi (Mjgnin, 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  $\omega_1$  lie on the same transverse level, or *aa* distally from  $\omega_1$  in adults and hypopi. *ad*<sub>2</sub> in female placed anteriorly *ps*<sub>2</sub>, 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.

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