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**REVIEW OF MITES OF THE FAMILY CANESTRINIIDAE
(ACARI, ASTIGMATA) ASSOCIATED WITH THE LEAF BEETLES
(COLEOPTERA, CHRYSOMELIDAE) IN UKRAINE
WITH DESCRIPTION OF A NEW SPECIES
OF THE GENUS *PSEUDAMANSIA***

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A Review of Mites of the Family Canestriniidae (Acari, Astigmata) Associated with the Leaf Beetles (Coleoptera, Chrysomelidae) in Ukraine with Description of a New Species of the Genus *Pseudamansia*. Trach V. A., Khaustov A. A. – Three species of the mite family Canestriniidae (Acari, Astigmata) were found on leaf beetles (Coleoptera, Chrysomelidae) collected during 2000–2005 in Ukraine. *Amansiella trilobata* Khaustov et Eidelberg, 2001 and *Paramansia bicornis* Khaustov et Eidelberg, 2001 are new for the continental part of Ukraine. *Chrysolina polita* and *C. fastuosa* are new hosts for *P. bicornis*. *Pseudamansia decorata* Tratsch et Khaustov, sp. n. occurring on *Timarcha goettingensis* in Odessa and Vinnica regions is described and illustrated. *P. decorata* sp. n. females differ from *P. chrysoelinus* by distinctly shorter and stiffer setae d_1 and c_1 .

Key words: Canestriniidae, Chrysomelidae, Ukraine, *Pseudamansia*, new species.

Обзор клещей семейства Canestriniidae (Acari, Astigmata), связанных с жуками-листоедами (Coleoptera, Chrysomelidae), на территории Украины с описанием нового вида рода *Pseudamansia*. Трач В. А., Хаустов А. А. – На жуках-листоедах (Coleoptera, Chrysomelidae), собранных в Украине в 2000–2005 гг., выявлено 3 вида клещей семейства Canestriniidae (Acari, Astigmata). Впервые для территории континентальной Украины указаны *Amansiella trilobata* Khaustov et Eidelberg, 2001 и *Paramansia bicornis* Khaustov et Eidelberg, 2001. Впервые как хозяева для *P. bicornis* приведены *Chrysolina polita* и *C. fastuosa*. Описанный *Pseudamansia decorata* Tratsch et Khaustov, sp. n., обнаружен на *Timarcha goettingensis* в Одесской и Винницкой областях. Самки *P. decorata* sp. n. отличаются от *P. chrysoelinus* заметно более короткими и жесткими щетинками d_1 и c_1 .

Ключевые слова: Canestriniidae, Chrysomelidae, Украина, *Pseudamansia*, новый вид.

Introduction

Mites of the family Canestriniidae (Acari, Astigmata) are external associates or parasites of many beetle families (Carabidae, Lucanidae, Passalidae, Scarabaeidae, Elateridae, Colydiidae, Tenebrionidae, Chrysomelidae) (OConnor, 1982). Five species of canestriniid mites associated with Chrysomelidae are known from the Palearctic Region: *Lombardiniella gentilis* (Lombardini, 1944), *Amansiella trilobata* Khaustov et Eidelberg, 2001, *Paramansia bicornis* Khaustov et Eidelberg, 2001, *P. menthastri* Cooreman, 1950, *Pseudamansia chrysoelinus* (C. L. Koch, 1841) (Cooreman, 1950; Khaustov, Eidelberg, 2001). The first three species have been previously recorded from Ukraine (Khaustov, Eidelberg, 2001). These species are associated with leaf beetles of the genera *Chrysolina* Motschulsky, 1860 and *Timarcha* Latreille, 1829. During our study a new species was found on *Timarcha goettingensis* (Linnaeus, 1758) from Odessa and Vinnitsa districts of Ukraine and is described below.

The idiosomal chaetotaxy nomenclature follows D. A. Griffiths et al. (1990). All measurements are given in micrometers (mkm) for the holotype and five paratypes (in parentheses). The holotype and three

paratypes are deposited in the collections of the Museum of Zoology, I. I. Mechnikov Odessa National University (Ukraine), other paratypes in the collections of Department of Zoology, I. I. Mechnikov Odessa National University (Ukraine). All host beetles are in the first author's collection.

Material and methods

During 2000–2005 we collected leaf beetles in several regions of Ukraine (Odessa, Mykolaiv, Kherson, Kirovograd, Zakarpatska, Lviv, Chmielnicky, Chernigiv, Donetsk and Crimea). Twenty species of the genus *Chrysolina*, and all 4 species of the genus *Timarcha* of Ukrainian fauna were studied. About 300 specimens of beetles were observed. Mites were recovered from subelital cavity or external cuticle of beetles and mounted on slides in Berlese medium. Slides were studied under light microscope with the phase contrast device.

Results

In this work, 3 species of mites of the family Canestriniidae were found in Ukraine on 4 species of leaf beetles. They are listed below.

Amansiella trilobata Khaustov et Eidelberg, 2001

Material examined. More 100 ex. (♂, ♀, TN, PN, larv.), Crimea, vicinity of Bahchisaraj, under elytra of *T. tenebricosa*, 5.05.2000 (Trach); over 100 ex. (♂, ♀, TN, PN, larv.), Donetsk Region, Volodarsky district, vicinity of Starchenkovo, Nature Reserve «Kamyani Mohyly», under elytra of *T. tenebricosa*, 16.09.2001 (Sergeev).

The species was described from vicinity of Yalta (Crimea), where it was found under elytra of *Timarcha tenebricosa* (Fabricius, 1775). New for the continental part of Ukraine.

Paramansia bicornis Khaustov et Eidelberg, 2001

Material examined. 5 ♀, 1 TN, Odessa Region, vicinity of Berezivka, under elytra of *C. polita*, 9.03.2001 (Trach); 2 ♀, 3 TN, 1 PN, 1 larva, Odessa Region, vicinity of Belyaevka, under elytra of *C. polita*, 10.07.2005 (Trach); 2 ♂, ♀, Kirovograd Region, Znamenska District, vicinity of Bogdanovka, under elytra of *C. fastuosa*, 29.04–6.05.2001 (Trach).

This species was described from Yalta (Crimea). It lives under elytra of *Chrysolina menthastri* Suffrian, 1851 (= *C. herbacea* (Duftschmidt, 1825)). We found this species on *Chrysolina polita* (Linnaeus, 1758) and *C. fastuosa* (Scopoli, 1763). This species is recorded for the first time from the continental Ukraine

Genus *Pseudamansia* Cooreman, 1950

Type species: *Dermaleichus chrysomelinus* C. L. Koch, 1841

Diagnosis. Female. Dorsum of idiosoma with delicate reticulation. Propodosomal plate weakly developed, small. Supracoxal setae long, nude. A sickle- or U-shaped structure absent. Sejugal furrow well developed. Setae *se*, *c_p*, *f₂* and *h₂*, long and flagellate. Posterior part of hysterosoma with cuticular spines. Bursa copulatrix bell-like. Apodemes 1 joined medially to form Y-shaped structure. Ventral chaetotaxy almost complete and only setae *ad₃* absent. Gnathosoma not elongate, only partially covered by propodosoma. Leg chaetotaxy (number of solenidia in parentheses): trochanters 1–1–1–1, femora 1–1–0–0, genua 2(1)–2(1)–1–0, tibiae (1)–(1)–(1)–(1), tarsi 9(3)–6(1)–4–5. Solenidion of tibia IV short, shorter than tibia IV. Subunguinal setae on tarsi I–IV strongly developed, spine-like.

Male. Dorsum of idiosoma with delicate reticulation. Propodosomal plate weakly developed, small. Supracoxal setae long, nude. Setae *se*, *c_p*, *f₂*, and *h₂* long and flagellate, other setae are short. Posterior part of hysterosoma with hysterosomal plate with oval porous fields. Adanal suckers well developed. Posterior margin of hysterosoma with

six distinct angles ventrally. All ventral setae thin. Leg chaetotaxy: trochanters 1–1–1–1, femora 1–1–0–0, genua 2(1)–2(1)–1–0, tibiae (1)–(1)–(1)–(1), tarsi 9(3)–6(1)–4–6. Solenidion of tibia IV long, longer than tarsus IV. Subunguinal setae on tarsi I–IV strongly developed, spine-like.

***Pseudamansia decorata* Tratsch et Khaustov, sp. n.**

Type material. Holotype ♀, slide № C 1/05, Ukraine, Odessa Region, Belyaevsky reg., vicinity of Altestovo, under elytra of *Timarcha goettingensis*, 7.10.2001 (Trach). Paratypes: 2 ♀, 2 ♂, 8 TN, 7 PN, 1 larva, same data as in holotype (slides C 1/05, C 2/05 and C 5/05); 8 ♂, 4 ♀, slide C 3/05, Ukraine, Vinnitsa Region, vic. of Yampil', under elytra of *T. goettingensis*, 20.02.2005 (Dyadichko); 1 TN, slide C 4/05, Ukraine, Odessa Region, Razdel'nyansky District, vicinity of Maloye, under elytra of *T. goettingensis*, 16.04.2000 (Trach).

Description

Female. Length of idiosoma 419 (423–517), width 348 (357–423).

Idiosoma. Dorsal surface (fig. 1, 1). Idiosomal dorsum with weakly developed reticulation pattern. Posterior part of hysterosoma with numerous cuticular spines. Setae *vi*, *c*₁, *c*₂, *d*₁, *d*₂, *e*₁, *e*₂, and *h*₁ blunt ended. Other dorsal setae pointed. Bursa copulatrix large (width 38). Length of dorsal setae: *vi* 21 (21–29), *ve* 4 (4–6), *si* 21 (17–21), *scx* (42–55), *c*₁ 67 (61–86), *c*₂ 40 (38–59), *d*₁ 90 (78–103), *d*₂ 65 (59–84), *e*₁ 55 (48–55), *h*₁ 48 (46–55).

Ventral surface (fig. 1, 2). Setae *ps*₁ and *h*₃ widened, situated on small protuberances, other setae thin. The length of ventral setae: *1a* 17 (15–21), *c*₃ 25 (23–29), *3a* 15 (13–19), *3b* 15 (15–19), *g* 15 (15–19), *4a* 15 (15–21), *e*₂ 78 (74–84), *h*₃ 42 (38–42), *ps*₁ 46 (48–67), *ps*₂ 23 (17–23), *ps*₃ 21 (19–29), *ad*₁ 34 (27–38), *ad*₂ 19 (17–21).

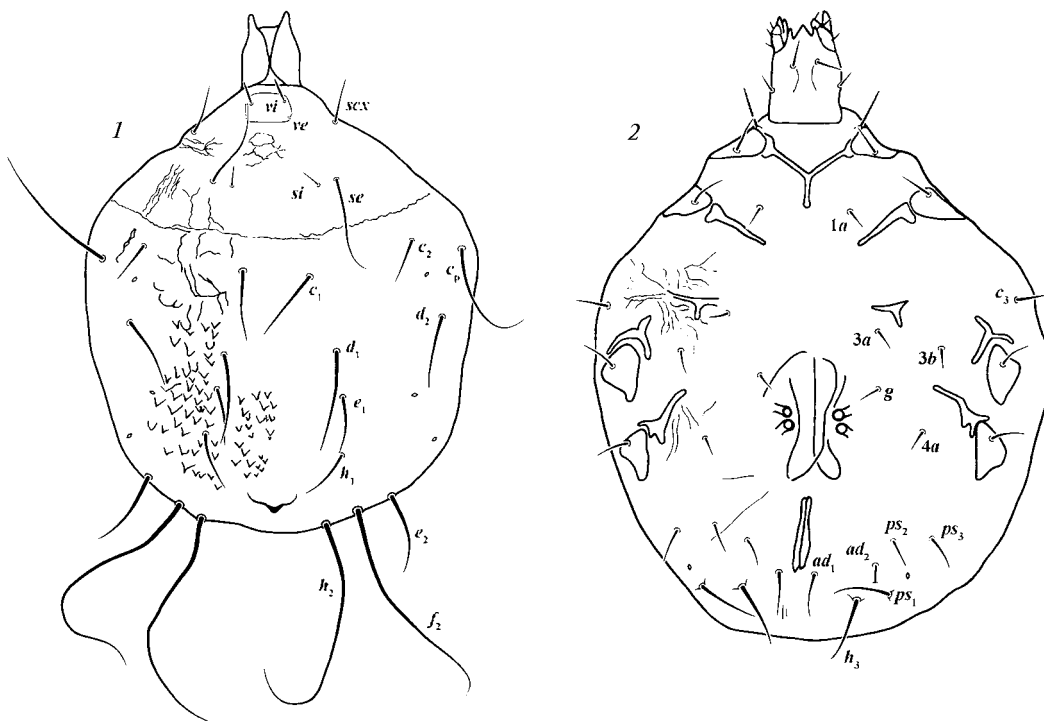


Fig. 1. *Pseudamansia decorata*, ♀: 1 – dorsal view of idiosoma; 2 – ventral view of idiosoma.

Рис. 1. *Pseudamansia decorata*, ♀: 1 – идиосома, дорсально; 2 – идиосома, вентрально.

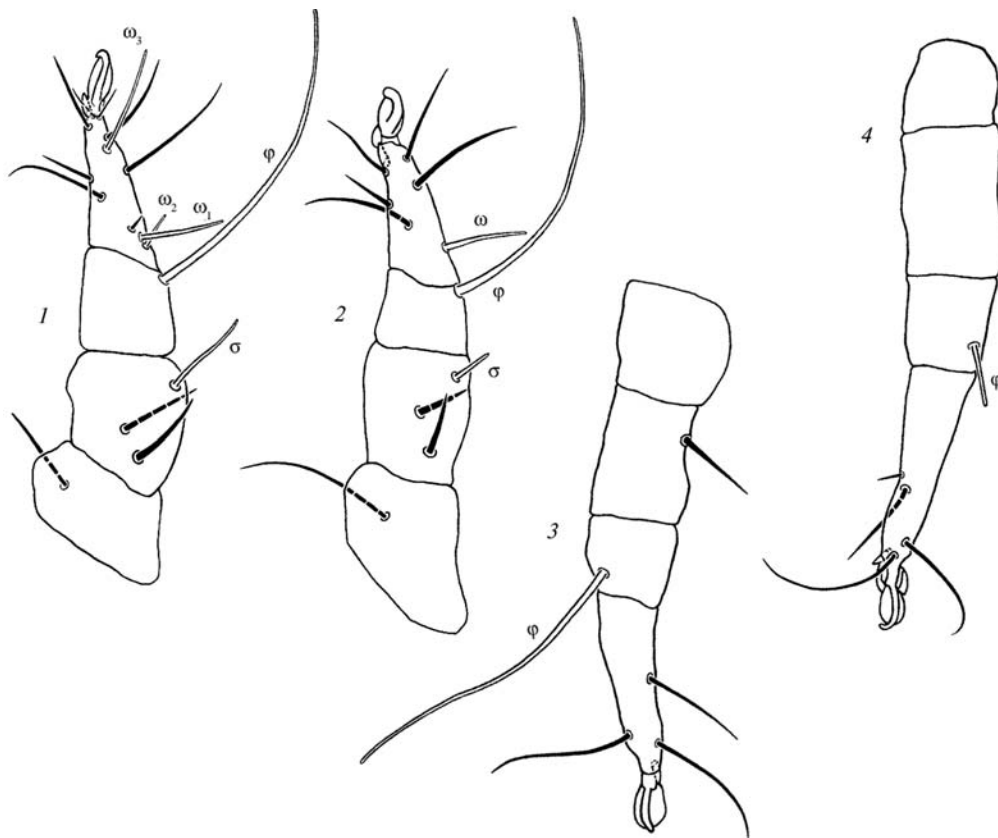


Fig. 2. *Pseudamansia decorata*, ♀: 1–4 – legs I–IV, respectively.

Рис. 2. *Pseudamansia decorata*, ♀: 1–4 – ноги I–IV соответственно.

Legs (fig. 2, 1–4). The length of legs: I 141 (137–151), II 145 (139–155), III 141 (143–160), IV 155 (158–174). The lengths of leg solenidia: leg I: ω_1 25 (23–25), ω_2 8 (6–8), ω_3 29 (25–29), ϕ 84 (84–99), σ 23 (21–25); leg II: ω 29 (27–34), ϕ 78 (76–90), σ 8 (8–11); leg III: ϕ 67 (71–88); leg IV: ϕ 17 (17–21). Subunguinal setae on tarsi I–IV strongly developed, spine-like.

Male. Length of idiosoma 371–404, width 310–348.

Idiosoma. Dorsal surface (fig. 3, 1). Idiosomal dorsum with weakly developed reticulation pattern. Posterior part of hysterosoma with hysterosomal plate bearing oval porous fields. Dorsal setae short and smooth. The length of dorsal setae: vi 19–23, ve 4, si 15–17, scx 38–48, setae c_1 , c_2 , d_1 , d_2 , e_1 , h_1 9–12.

Ventral surface (fig. 3, 2). Posterior margin of hysterosomal plate with six distinct angles. All ventral setae thin. The lengths of ventral setae: $1a$ 13–17, c_3 19–25, $3a$ 10–17, $3b$ 10–17, g 11–15, $4a$ 11–15, e_2 7–12, h_3 14–22, ps_1 13–17, ps_2 11–17, ps_3 11–17.

Legs (fig. 4, 1–4). The length of legs: I 126–139, II 129–143, III 143–158, IV 158–174. The lengths of leg solenidia: leg I: ω_1 19–23, ω_2 6–8, ω_3 23–29, ϕ 71–92, σ 21–25; leg II: ω 23–32, ϕ 71–92, σ 6–11; leg III: ϕ 59–78; leg IV: ϕ 71–82. Subunguinal setae on tarsi I–IV strongly developed, spine-like.

Differential diagnosis. The new species differs from *P. chrysomelinus* (C. L. Koch, 1841) by distinctly shorter setae d_1 and c_1 in females. In *P. decorata* c_1 may reach only to bases of d_1 (in *P. chrysomelinus* c_1 reaching beyond d_1 and e_1). In *P. decorata* d_1 reaching ends of e_1 and bases of h_1 (in *P. chrysomelinus* they reaching

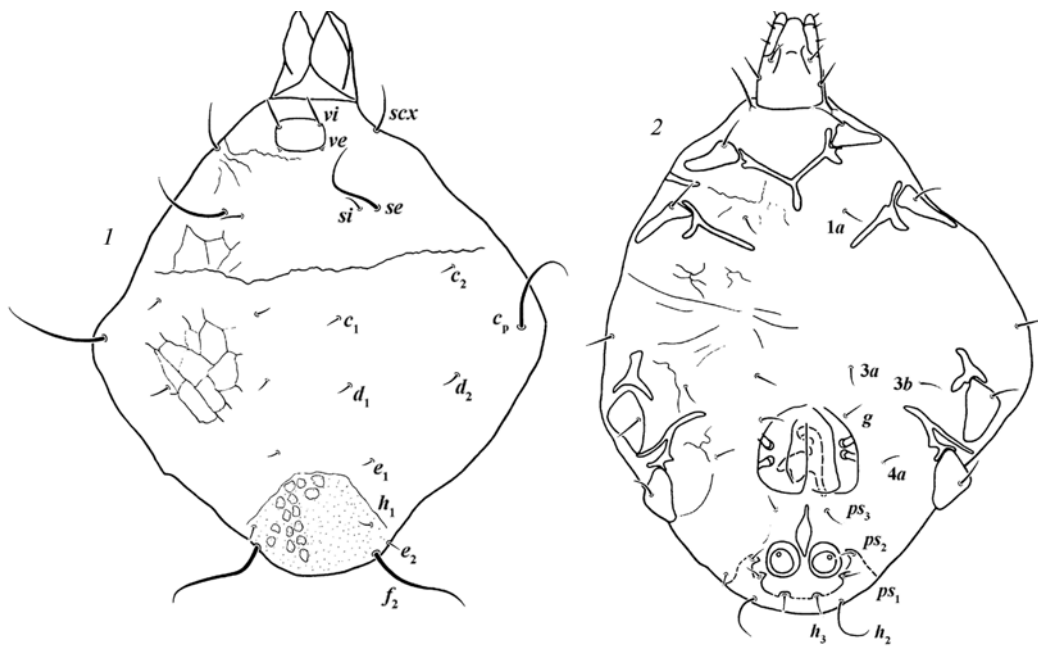


Fig. 3. *Pseudamansia decorata*, ♂: 1 – dorsal view of idiosoma; 2 – ventral view of idiosoma.

Рис. 3. *Pseudamansia decorata*, ♂: 1 – идиосома, дорсально; 2 – идиосома, вентрально.

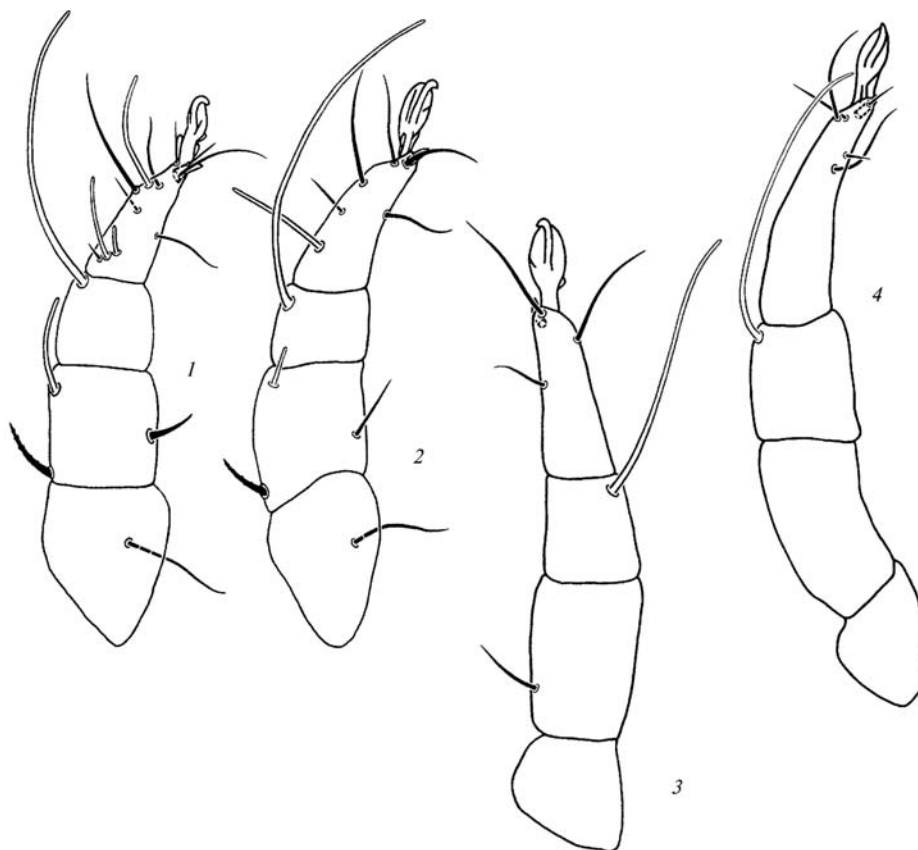


Fig. 4. *Pseudamansia decorata*, ♂: 1–4 – legs I–IV, respectively.

Рис. 4. *Pseudamansia decorata*, ♂: 1–4 – ноги I–IV соответственно.

considerably beyond e_1 and reaching ends of h_1 . These two species also differ by relative length of setae:

- *P. chrysomelinus*: $d_1: e_1 \approx 2,6-2,8$; $c_1: e_1 \approx 2-2,3$.
- *P. decorata* sp. n.: $d_1: e_1 \approx 1,6-2$; $c_1: e_1 \approx 1,2-1,6$.

Etymology. The species name «*decorata*» is referred to the shape of the posterior part of hysterosoma in females.

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Cooreman J. Étude de quelques Canestriniidae (Acari) vivant sur des Chrysomelidae et sur des Carabidae (Insecta Coleoptera) // Bull. Inst. Royal des Sciences Naturelles de Belgique. – 1950. – 26, N 33. – P. 1–54.

Griffiths D. A., Atyeo W. T., Norton R. A., Lynch C. A. The idiosomal chaetotaxy of astigmatid mites // J. Zool. – London, 1990. – Vol. 220. – P. 1–32.

Khaustov A. A., Eidelberg M. M. A review of the mite family Canestriniidae (Acarina: Astigmata) of the eastern Palearctic // Acarina. – 2001. – 9, N 1. – P. 23–46.

OConnor B. M. Astigmata // Synopsis and Classification of Living Organisms / S. B. Parker. – New York : Mc-Graw-Hill, 1982. – Vol. 2. – P. 146–169.