

## A review of Palaearctic species of *Artemicoccus* and *Coccidohistrix* (Homoptera: Coccinea: Pseudococcidae)

## Обзор палеарктических видов *Artemicoccus* и *Coccidohistrix* (Homoptera: Coccinea: Pseudococcidae)

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Two morphologically close genera of mealybugs, *Artemicoccus* Balachowsky, 1953 and *Coccidohistrix* Lindinger, 1943, are considered based mainly on the Palaearctic fauna. The key for all Palaearctic species is provided, and *A. bispinus* (Borchsenius, 1949) and *C. artemisiae* Kiritshenko, 1937 are redescribed and illustrated. Lectotypes are designated for three nominal species. The following new synonymy is established: *Artemicoccus bispinus* (Borchsenius, 1949) = *A. unispinus* (Borchsenius, 1949), **syn. nov.**

Два близких рода мучнистых червецов, *Artemicoccus* Balachowsky, 1953 и *Coccidohistrix* Lindinger, 1943 рассматриваются главным образом на примере палеарктической фауны. Приводится определительных ключ для всех палеарктических видов, а также переописания и иллюстрации *A. bispinus* (Borchsenius, 1949) и *C. artemisiae* Kiritshenko, 1937. Для трех номинальных видов обозначены лектотипы. Установлен новый синоним: *Artemicoccus bispinus* (Borchsenius, 1949) = *A. unispinus* (Borchsenius, 1949), **syn. nov.**

**Key words:** mealybugs, scale insects

**Ключевые слова:** мучнистые червецы, кокциды

### INTRODUCTION

The genus *Artemicoccus* was erected out from the genus *Centrococcus* Borchsenius, 1948 (= *Coccidohistrix* Lindinger, 1943) with two species. Kozár & Pellizari (1989) regarded these two species under *Coccidohistrix* genus, but here we consider these genera separately following Ben-Dov (1994) and provide a key for differentiation below.

### TAXONOMIC PART

#### Key to species of the genera *Artemicoccus* and *Coccidohistrix*

- 1(4) Dorsal conical setae situated on body surface; sclerotised elevation plates absent (genus *Artemicoccus*).
- 2(3) Dorsal tubular ducts numerous. Ventral trilocular pores distributed along body margin  
..... ***A. bispinus*** (Borchsenius, 1949)

- 3(2) Dorsal tubular ducts and ventral trilocular pores absent .....  
 ..... *A. lubersaci* (Balachowsky, 1953)
- 4(1) Dorsal conical setae situated on sclerotised elevations, which form longitudinal rows (genus *Coccidohystrix*).
- 5(8) Dorsal tubular ducts numerous.
- 6(7) Dorsal tubular ducts of one size. Antennae eight-segmented .....  
 ..... *C. artemisiae* (Kiritshenko, 1937)
- 7(6) Dorsal tubular ducts of two sizes. Antennae seven-segmented (on *Juniperus*) .....  
 ..... *C. zangheri* Kozár et Pellizzari, 1989
- 8(5) Dorsal tubular ducts absent.
- 9(10) Multilocular and quinquelocular pores numerous .....  
 ..... *C. insolata* (Green, 1908)
- 10(9) Multilocular pores absent; quinquelocular pores ular .....  
 ..... *C. echinata* (Balachowsky, 1936)

Genus *Artemicoccus* Balachowsky, 1953

*Artemicoccus* Balachowsky, 1953b: 146; type species: *Centrocooccus bispinus* Borchsenius, 1949, by original designation.

**Description.** Adult female. Body oval, yellowish, covered by a felt white ovisac. The slide mounted female up to 2 mm long. Eyes well developed. Antennae seven-segmented. Legs well developed. Claw with denticle. Ostioles and circuli absent. Dorsum of head and thorax usually with cellular plates of irregular form. Anal ring with six setae. Multilocular pores distributed on abdominal sternites and tergites. Quinquelocular pores distributed on all ventral surface. Trilocular pores numerous on dorsum and present along ventral body margin or totally absent on venter. Small (smaller than trilocular pores) tetralocular pores or irregular form present around the spiracle atrium. Tubular ducts present on both body surfaces or only on venter; dorsal ducts are generally larger than ventral. Enlarge conical setae form longitudinal rows on dorsum generally associated with trilocular pores. Anal lobes with three conical spines. Small spine like setae form transverse rows on dorsum.

**Mode of life.** Palaearctic genus with two species associated with *Artemisia* spp.

*Artemicoccus bispinus* (Borchsenius, 1949)  
(Figs 1–2)

*Centrocooccus bispinus* Borchsenius, 1949: 309 (Turkmenistan; lectotype designated here: female, "*Centrocooccus bispinus* Borchs., Aschabat, Firjuza, on stems of *Artemisia*, 29 VIII 1939, Alexis Kiritshenko det., type", slide 16–45. Paralectotypes: 6 females with the same data).

*Centrocooccus unispinus* Borchsenius, 1949: 310 (Armenia, lectotype designated here: female, "*Centrocooccus unispinus* Borchs., Armenia, southern everons of Erevan, on stems of *Artemisia*, 1.IX. 1948, N. Borchsenius, No. 612". Slide 284–48. Paralectotypes: 12 females with the same data. One female with the label "Armenia, Megry, on stems of *Artemisia*, 17.VIII.1948, N. Borchsenius, No. 694". Slide 490–48), **syn. nov.**

*Centrocooccus unispinus* – Ter-Grigorian, 1973: 225.

**Description.** Adult female. The same characters which were provided in the genus description. Dorsal tubular ducts numerous. Ventral trilocular pores distributed along body margin and near spiracles.

**Comments.** The new synonymy has been established by comparison of type material of both species. The difference provided in the original description (dorsal enlarge conical setae are in groups of two or three in contrast to singular conical setae in *C. unispinus*) lies in the frames of individual variation even in the type series.

**Material.** In addition to the type series of *C. bispinus* and *C. unispinus*, series of females from Tadjikistan and Turkey.

**Distribution.** Turkey (here, it is first time reported), Armenia, Turkmenistan, Tadjikistan.

Genus *Coccidohystrix* Lindinger, 1943

*Echinococcus* Balachowsky, 1936: 157 (non Rudolphi, 1801, Vermes); type species: *E. echinatus* Balachowsky, 1936, according to original designation and monotypy.

*Coccidohystrix* Lindinger, 1943: 219 (replacement name for *Echinococcus* Balachowsky, 1936).

*Centrocooccus* Borchsenius, 1948: 953; type species *Echinococcus echinatus* Balachowsky,

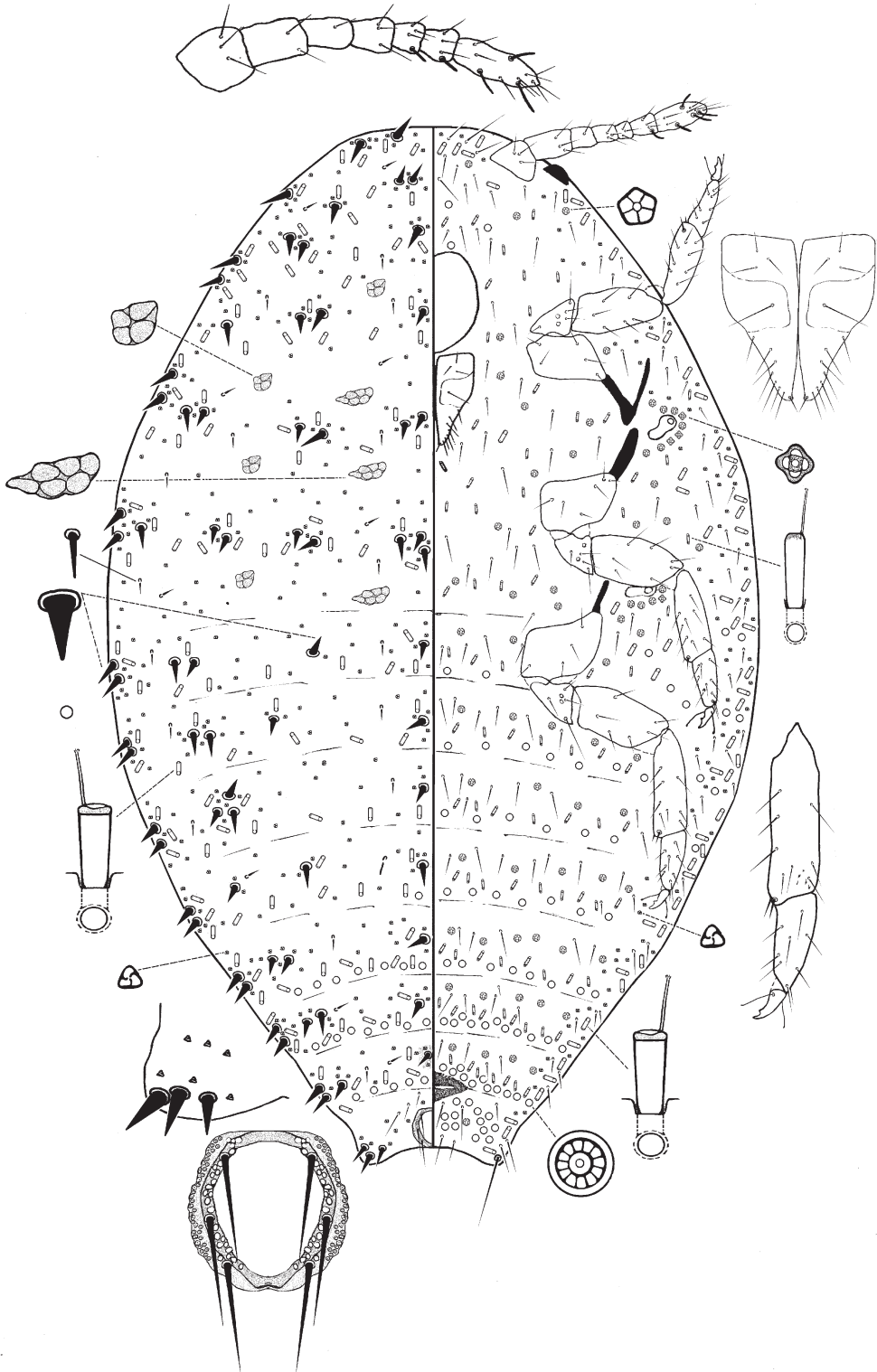


Fig. 1. *Artemicoccus bispinus*, female, lectotype.

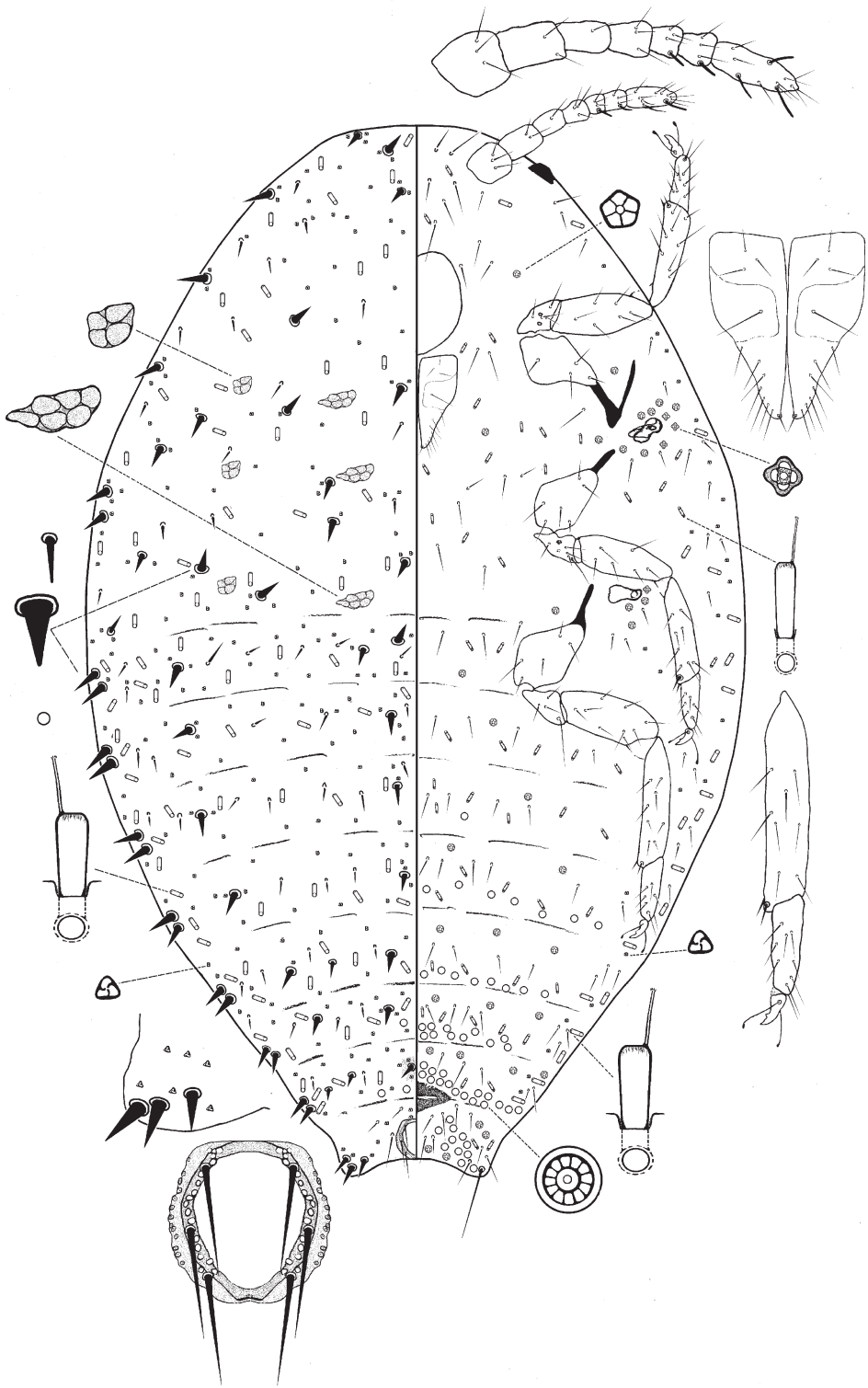


Fig. 2. *Artemicoccus bispinus*, female, lectotype of *A. unispinus*, syn. nov.

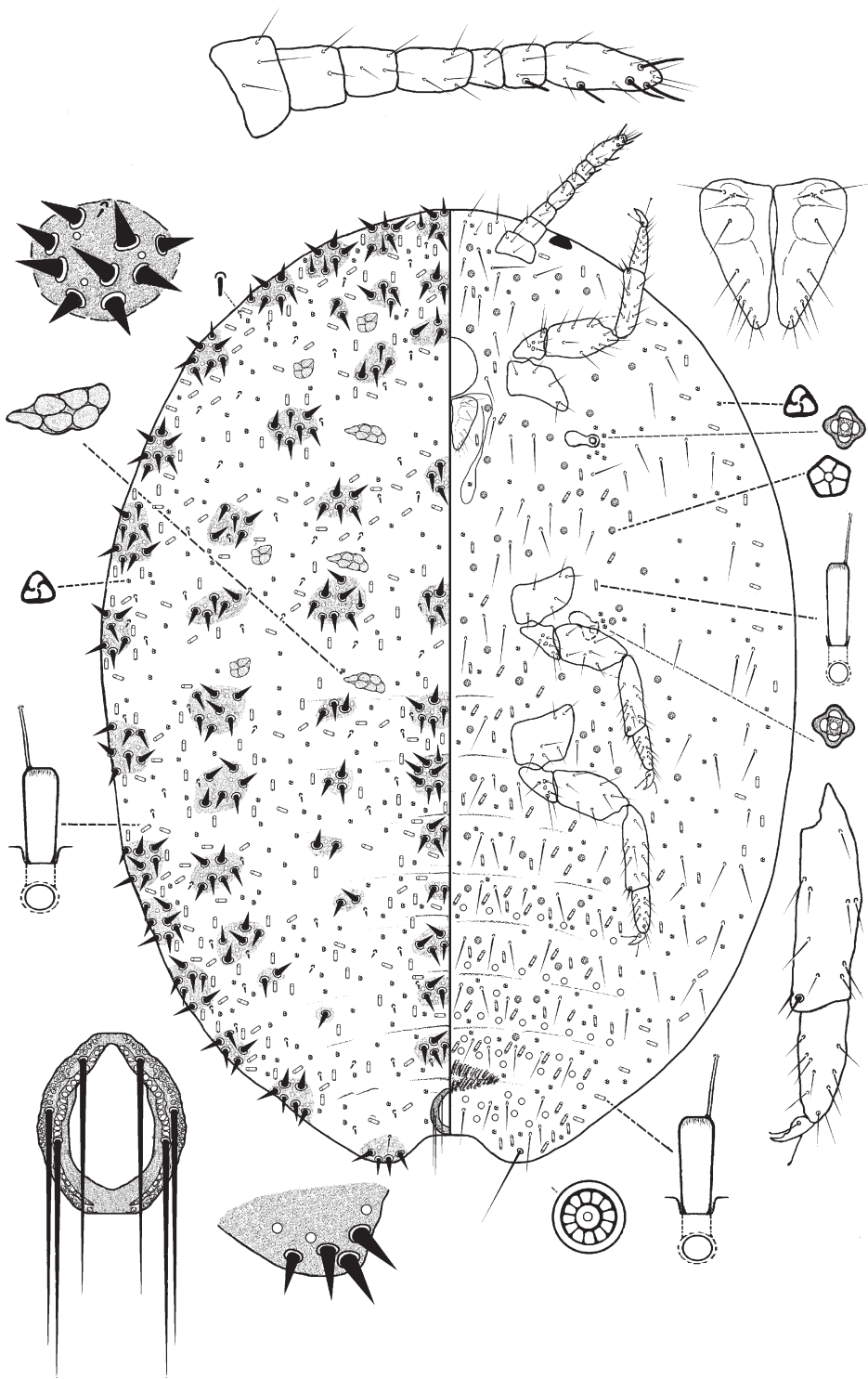


Fig. 3. *Coccidohistrix artemisiae*, female, lectotype.

1936, the same type species as for *Coccidohystrix*; synonymised by Morrison & Morrison, 1966: 31.

**Description.** Adult female. Body oval, enclosed in dense felt ovisac. Eyes present, well developed. Antennae eight- or nine-segmented (seven-segmented in *C. zangheri* only). Legs well developed. Claw with denticle. Ostioles and circuli absent. Anal ring with six setae. Simple tubular ducts present. There are numerous dorsal sclerotised elevated plates bearing enlarged conical setae and several (generally two–four) simple pores. These elevations form several rows along the body; the number of conical setae varies in different species. Marginal rows usually include sixteen–eighteen pairs of elevations with numerous setae each and can be considered as cerarii. However, in contrast to cerarii in other mealybug genera, the cerarii of *Coccidohystrix* usually do not bear trilocular pores.

The genus includes seven species; five of them are distributed in southern Palaearctic, one on the territory of Russia and neighboring countries and one described from Madagascar. Three species, *C. splendens* Goux, 1946, described from southern France and redescribed recently by Marotta & Tranfaglia, 1994, *Coccidohystrix samui* Kozár et Konczné Benedicty, 1997, described from Hungary and *C. burumandi* Moghaddam et Alikhani, 2009, described from Iran seem to be very similar morphologically with the type species, *C. echinata*.

### *Coccidohystrix artemisiae*

(Kiritshenko, 1937)

(Fig. 3)

*Echinococcus artemisiae* Kiritshenko, 1937: 395 (Ukraine; lectotype designated here: female “*Centrocooccus artemisiae* (Kir.), vicinity of Odessa, roots of *Artemisia*, 30 IV 1936, Shuvalova”, slide 367–58; paralectotypes: 5 females with the same label on 3 slides, but under the name of *Greenisca artemisiae*).

*Centrocooccus artemisiae* – Borchsenius, 1949: 308; Tereznikova, 1975: 168; Matesova, 1968: 113.

**Description.** Adult female. The description in general as for genus. Antennae 8-segmented. Multilocular, quinquelocular and trilocular pores numerous. Tubular ducts on dorsum numerous, of one size only. Sclerotised elevated plates with 7–12, rarely with 2–6 or 13–17 conical setae. Median part of dorsum with one row of sclerotised elevated plates.

**Comments.** The species is closed to the type species but differs in the presence of tubular ducts.

Trilocular pores are usually absent on sclerotised elevations in all species of *Coccidohystrix*, but in some populations of *Coccidohystrix artemisiae* from Central Asia we found singular trilocular pores.

**Material.** In addition to the type material, 22 females from Russia, Georgia, Armenia and Central Asia.

**Distribution.** Russia (Volgograd Prov., Dagestan), Ukraine, Georgia, Armenia, Kazakhstan, Uzbekistan, Kirgizia, Tadjikistan, Cyprus, Turkey.

**Mode of life.** It lives on leaves, stems and roots of *Artemisia* spp.

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