

A new species of the genus *Coccidohystrix* (Homoptera: Coccinea: Pseudococcidae) from Madagascar

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Coccidohystrix primigenia n. sp. is described and illustrated. The new species is considered as a most primitive member of the genus in the recent fauna. An identification key for all 17 nominal species of the genus is provided.

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Introduction

The genus *Coccidohystrix* Lindinger, 1943 has mainly Palaearctic distribution and was recently revised in our monograph on Palaearctic mealybugs (Danzig and Gavrilov-Zimin 2014). In the Afrotropical fauna, the genus is represented by the widely distributed Oriental–Afrotropical *C. insolita* (Green, 1908) and an endemic of Madagascar *C. madecassa* (Mamet, 1959). In 2011, my colleague, cicadologist Dr. V.M. Gnezdilov collected in Madagascar and passed to me one previously unknown very peculiar species which is described below as new for science. This species, *C. primigenia* n. sp. significantly differs not only from *C. madecassa*, but from all other species of the genus in a row of primitive, plesiomorphic characters, such as a presence of both pairs of ostioles, trilocular pores in mamelons, different size of dorsal and ventral trilocular pores and presence of circuli. All these characters lack in other *Coccidohystrix* spp., but are known in mealybugs of the generic group *Phenacoccus* Cockerell, 1893 which is considered by me as ancestral for *Coccidohystrix* (Danzig and Gavrilov-Zimin 2014; Gavrilov-Zimin 2015). In view of this reason, *C. primigenia* seems to be a most primitive member of the genus in the recent fauna and its endemism to Madagascar is correlated with a well-known archaic feature of the fauna of this island as a whole.

Here, I am providing a renovated key to the genus (in comparison with the key in Danzig and Gavrilov-Zimin 2014) with an addition of two mentioned endemics of Madagascar, one species, described from Pakistan (Williams 2004) and two species, recently described from Turkey and Bulgaria (Kaydan et al. 2015). So, the genus includes 17 nominal species in the world fauna.

Holotype and four paratypes are deposited in the Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia. Two paratypes are preserved in Muséum National d'Histoire Naturelle, Paris, France.

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The method of Canada balsam slides preparation is found, for example, in Danzig and Gavrilov-Zimin (2014).

Key to species of the genus *Coccidohystrix*

- 1(2) Both pairs of ostioles, circuli and numerous trilocular pores in all mamelons present...
.....*C. primigenia* n. sp.
- 2(1) Ostioles represented by one (posterior) pair only or absent at all; circuli absent; mamelons without trilocular pores or only occasional trilocular pores present in some mamelons.
- 3(30) Trilocular pores on body surface numerous, scattered on both body sides.
- 4(13) Mamelons are not developed at all or poorly developed on some tergites.
- 5(10) Groups of large conical setae forming transverse rows on most tergites of body.
- 6(9) Dorsal tubular ducts of one size. On dicotyledonous herbs.
- 7(8) Large conical setae are significantly smaller than large tubular ducts; bases of conical setae are about the same size as diameter of tubular ducts.....
..... *C. bispina* (Borchsenius, 1949)
- 8(7) Large conical setae are longer or the same size as tubular ducts; bases of conical setae are about two times wider than diameter of tubular ducts.....
.....*C. lubersaci* (Balachowsky, 1953)
- 9(6) Dorsal tubular ducts of two sizes. On *Juniperus*.....
.....*C. zangherii* Kozár & Pellizzari, 1989
- 10(5) Large conical setae forming band or separate compact groups along margin of dorsal surface of body.
- 11(12) Large conical setae forming band along body margin. Two pairs of mamelons, each with 7–8 conical setae and several trilocular pores present on margin of two posterior abdominal tergites. Multilocular pores absent.....
..... *C. prionodes* (Wang, 1976)
- 12(11) Groups of 2–3 large conical setae present along body margin like *cerarii* in other mealybugs. Mamelons absent, but occasional conical setae present on dorsal side of thorax. Multilocular pores forming transverse rows on several posterior abdominal sternites.....
.....*C. echinata* (Balachowsky, 1930)
- 13(4) Mamelons well developed throughout on dorsum.
- 14(17) Dorsal tubular ducts numerous.
- 15(16) Marginal mamelons numbering 14–15 pairs.....*C. artemisiae* (Kiritshenko, 1937)
- 16(15) Marginal mamelons numbering 18 pairs.....*C. eleusines* Williams, 2004
- 17(14) Dorsal tubular ducts absent.
- 18(21) Ventral tubular ducts and multilocular pores numerous.
- 19(20) Tubular ducts forming marginal groups on abdominal sternites only.....
.....*C. insolita* (Green, 1908)
- 20(19) Tubular ducts forming marginal groups not only on abdominal sternites, but on all thoracic sternites only.....*C. madecassa* (Mamet, 1959)
- 21(18) Ventral tubular ducts very few, present on last abdominal sternites only. Multilocular pores few or absent.
- 22(25) Hind tibia without translucent pores.
- 23(24) Any setae, excluding large conical ones in mamelons, are absent on dorsum. Setae of anal apparatus similar in length with a diameter of anal ring.....
.....*C. splendens* (Goux, 1946)

- 24(23) Minute conical setae are present on dorsum between and near mamelons. Setae of anal apparatus significantly longer than a diameter of anal ring.....
.....*C. samui* Kozár & Konczné Benedicty, 1997
- 25(22) Hind tibia with translucent pores.
- 26(27) Antennae seven-segmented.....*C. zsuzsanna* Kaydan, 2015
- 27(26) Antennae nine-segmented.
- 28(29) Trilocular pores form large groups near spiracles.....
.....*C. burumandi* Moghaddam, 2009
- 29(28) Trilocular pores few near spiracles.....*C. katieae* Kaydan & Szita, 2015
- 30(3) Trilocular pores very few, present near spiracles only.
- 31(32) Mamelons forming transverse rows on most of tergites. Cylindrical setae very short, about two times longer than wide.....
.....*C. maghribiensis* Gavrilov-Zimin & Matile-Ferrero, 2014
- 32(31) Mamelons absent; few dorsal conical setae are present along body margin only. Cylindrical setae long, more than 10 times longer than wide.....
.....*C. monicae* Gavrilov-Zimin & Matile-Ferrero, 2014

***Coccidohystrix primigenia* n. sp.**

(Figure 1)

Material examined

Holotype, female, Madagascar, Toliara Prov., Massif du Makay, 21°40'16" S / 44°59'22.5"E, on leaves of *Grewia triflora*, 21.I.2011, V.M. Gnezdilov, collection number K 1279. Paratypes: six females with the same collecting data.

Description

Female. Body elongate oval, up to 4 mm long, white in ethanol. Antennae nine-segmented. Legs normally developed, without translucent pores; claw with a denticle. Anal apparatus complicated, with one inner row of pores, double outer row of spinulae and six long setae. Both pairs of ostioles well developed. Circuli oval, three in number. Multilocular pores forming broad bands on abdominal sternites and sparse groups along margin of dorsum, occasionally present in medial and submedial zones of thoracic and anterior abdominal tergites. Quinquelocular pores scattered on abdominal sternites. Trilocular pores of two sizes: larger pores evenly scattered on dorsum and present in mamelons; smaller pores forming marginal band on venter. Simple discoidal pores scattered on both body sides and present in mamelons. Simple tubular ducts slightly variable in size scattered on venter (see distribution in figure). Mamelons each with 2–14 enlarged conical setae, accompanied by trilocular and simple discoidal pores, forming transverse rows on each tergite of body. Conical setae of different size present on dorsum between mamelons. Ventral surface of body covered by flagellate setae of different size.

Available adult females were totally covered by ovisacs, but did not start oviposition. Moreover, there were no eggs or embryos inside of the body.

Males and morphology of larvae unknown.

Remarks

The new species differs from all other known species of the genus in the presence of both pairs of ostioles, the presence of circuli and numerous trilocular pores in all mamelons.

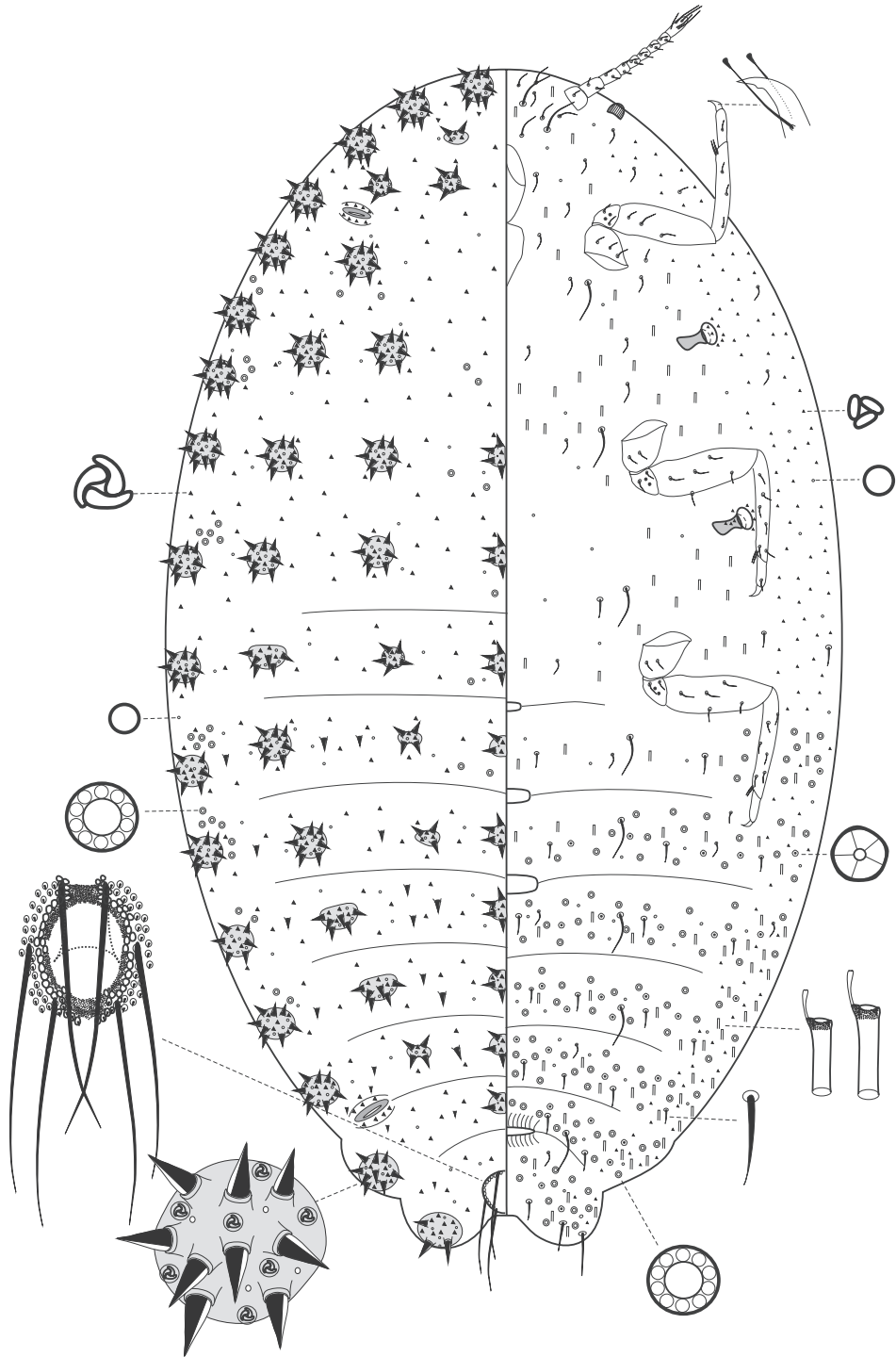


Figure 1. *Coccidohystrix primigenia* n. sp., holotype.

Two other peculiar characters, groups of multilocular pores on dorsum and different size of dorsal and ventral trilocular pores, additionally differ the new species from the second Madagascan endemic, *C. madecassa* Mamet, 1959.

Etymology

The specific name is a Latin adjective which means “primary, initial”.

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Disclosure statement

No potential conflict of interest was reported by the author.

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References

- Danzig EM, Gavrilov-Zimin IA. 2014. Palaearctic mealybugs (Homoptera: Coccinea: Pseudococcidae). Part 1. Subfamily Phenacoccinae. Fauna of Russia and neighbouring countries. New series, No. 148. Insecta: Hemiptera: Arthroideognatha. St. Petersburg: Zoological Institute, Russian Academy of Sciences. 678 p.
- Gavrilov-Zimin IA. 2015. System of generic groups in mealybugs (Homoptera: Coccinea: Pseudococcidae). *Zoosystematica Rossica*. 24(2):236–259.
- Kaydan MB, Pellizzari G, Szita E. 2015. Two new species of *Coccidohystrix* Lindinger (Hemiptera: Coccoomorpha: Pseudococcidae) with notes on the related genus *Artemicoccus* Balachowsky. *Turkish Entomological Journal*. 39(4):355–366.
- Williams DJ. 2004. Mealybugs of Southern Asia. Kuala Lumpur: Southdene SDN. 896 p.