



Revision of *Heterococcopsis* Borchsenius (Hemiptera: Coccoidea: Pseudococcidae), with description of a new genus with two new species from Turkey

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Abstract

The genus *Heterococcopsis* Borchsenius is revised. *Heterococcopsis opertus* Borchsenius is transferred to a new genus *Heterobrevinnia* Kaydan **gen. nov.** and the adult females of two new species belonging to *Heterobrevinnia* are described: *H. gullanae* Kaydan **spec. nov.** and *H. kozari* Kaydan **spec. nov.** *Heterococcopsis desertus* Bazarov & Nurmamatov is transferred to the genus *Phenacoccus* Cockerell.

Key words: Pseudococcidae, Poaceae, *Heterococcus* group, quinquelocular pores

Introduction

The genus *Heterococcopsis* Borchsenius was first described by Borchsenius (1948) and belongs to the *Heterococcus*-group of mealybugs (Pseudococcidae), which has species predominantly occurring in the Palaearctic region, but with some species in the Afrotropical, Nearctic, Neotropical and Oriental Regions (Ben-Dov *et al.*, 2011). Most species in this group feed on grasses and are characterized by having quinquelocular pores on the dorsum and trilocular pores that are either absent or restricted to areas around the spiracles and cerarii. Also in this group, the number of cerarii are reduced (generally 2–4) and are restricted to the posterior abdominal segments and the head. The *Heterococcus*-group includes eight genera distributed worldwide: *Annulococcus* James (with 2 species) in the Afrotropic Region, *Boreococcus* Danzig (1 species) in the Palaearctic Region, *Brevinnia* Goux (5 species) in the Palaearctic, Afrotropical and Oriental Regions, *Heterococcus* Goux (12 species) in the Palearctic and Nearctic Regions, *Paramacoccus* Foldi & Cox (1 species) in the Neotropics, *Pseudorhodania* Borchsenius (2 species) in the Palaearctic, and *Stachycoccus* Borchsenius (1 species), also from the Palaearctic. Besides these, several other genera, such as *Asphedelococcus* Morrison, *Coleococcus* Borchsenius and *Lacombia* Goux, share some morphological features with this group, such as the presence of numerous quinquelocular pores on the dorsum, but these genera are not included into the generic key below because the structure of their pores is different to those of the *Heterococcus*-group. Foldi and Cox (1989) examined the *Heterococcus*-group in detail and described the genus *Paramococcus* Foldi & Cox. Miller (1975) revised the genus *Heterococcus* and included seven species, redescribed *Brevinnia rehi* (Lindinger) and indicated that this species is closely related to *Heterococcus*. Later, Danzig (1985) suggested that *Brevinnia* and *Heterococcopsis* were junior synonyms of *Heterococcus*, and suggested that the presence of a few trilocular pores in the adult female was not a sufficiently important feature to separate these genera. On the other hand, Williams (1985) agreed with Miller's (1975) ideas and considered that the adult male features were quite distinctive. More recently, Hardy *et al.* (2008) placed *Brevinnia* in the subfamily Pseudococcinae based on the lack of a denticle on the claw, and placed the other genera in the subfamily Phenacoccinae.

The current position of the genus *Heterococcopsis* is quite problematic. According to Miller and McKenzie (1970), *Heterococcopsis* differs from *Heterococcus* in having trilocular pores, but they argued that this was not a good feature to separate the two genera. In fact *Heterococcopsis* has three species that are quite different from each other. The type species of the genus, *H. lonicera* Borchsenius, differs from other species in other *Heterococcus*-