Zootaxa 2400: 66–68 (2010)
www.mapress.com/zootaxa/

Correspondence

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

Family-group names proposed in the family Pseudococcidae (Hemiptera: Sternorrhyncha: Coccoidea)

D.J. WILLIAMS[1] & P.J. GULLAN[2,3]

[1]*Department of Entomology, The Natural History Museum, Cromwell Road, London SW7 5BD, U.K*
[2]*Department of Entomology, University of California, One Shields Avenue, Davis, California 95616-8584, U.S.A.*
[3]*Corresponding author. E-mail: pjgullan@ucdavis.edu*

Introduction

Since Cockerell (1905) erected the family-group name Pseudococcini, the name has become widely used for all mealybugs. Lobdell (1930) raised the status of the group to family level as the Pseudococcidae, but it was not until Borchsenius (1949) and Ferris (1950) accepted the family level that the rank of Pseudococcidae became more widely accepted within the superfamily Coccoidea. Various tribes and subtribes have been introduced without any reliable classification of the family.

In an extensive study of the mouthparts of scale insects, Koteja (1974a, b) recognised the four mealybug subfamilies, Pseudococcinae, Trabutininae, Rhizoecinae and Sphaerococcinae, although later he (Koteja, 1988) modified this to only the subfamilies Pseudococcinae, Phenacoccinae and Rhizoecinae. Phylogenetic analyses of DNA sequence data from three nuclear genes obtained from 64 mealybug species representing 35 genera (Downie & Gullan 2004) recovered three major clades comprising the three subfamilies Pseudococcinae, Phenacoccinae and Rhizoecinae, and suggested various groupings that agreed with some tribal names. The type species of the genus *Trabutina* Marchal, the nominal genus of the subfamily Trabutininae, and the type species of the genus *Sphaerococcus* Maskell, the nominal genus of the subfamily Sphaerococcinae, were not included in the study by Downie & Gullan (2004). These two genera represented by the type species *Trabutina mannipara* (Hemprich & Ehrenberg) and *Sphaerococcus casuarinae* Maskell, were available later in an extensive study of 57 mealybug genera by Hardy *et al.* (2008) based on integrated molecular and morphological data. Two primary clades representing the subfamilies Pseudococcinae and Phenacoccinae were recovered from this study, with the Phenacoccinae containing *Phenacoccus* Cockerell and related genera as well as the genus *Rhizoecus* Künckel d'Herculais and related genera.

The following list shows the family-group names that have been proposed within the family Pseudococcidae, separated into those belonging to each of the subfamilies Pseudococcinae and Phenacoccinae. Some of these names will no doubt be used in future classifications but others may fall into synonymy. Other new names may be needed for further genus groups. The left column lists the names and dates of nominal genera on which family-group names have been based, and the right column lists the family-group names that have been proposed with their first published dates. The list supplements those in Williams (1969) and Ben-Dov (1994), and full references to the genus and family-group names cited in the list can be found in those publications or in the database ScaleNet (Ben-Dov *et al.,* 2009).

As noted by Williams (1969) and Hardy *et al.* (2008), the family-group name Sphaerococcinae has priority over Pseudococcidae. The name Sphaerococcinae has been used rarely, although Hendricks & Kosztarab (1999) used the name to discuss all the legless mealybug genera even though these authors indicated that the subfamily did not represent a monophyletic group. The non-monophyly of the legless mealybugs was confirmed by Downie & Gullan (2004) and Hardy *et al.* (2008). Precedence of the family-group name Pseudococcidae over Sphaerococcinae is not covered under Article 35.5 of the International Code of Zoological Nomenclature (1999) because the type genera of these two family-group names appear to be in the same subfamily and tribe, as shown in the analyses of Hardy *et al.* (2008). Hardy & Gullan (2008) submitted an application to the International Commission on Zoological Nomenclature to preserve the usage of both names and to request that the family-group name Pseudococcini be given precedence over Sphaerococcini whenever their type genera are placed in the same family-group taxon. The Commission received no comments on the case and in late 2009 made a ruling (Opinion 2236 (Case 3424)) that conserved usage of the family-group name Pseudococcini Cockerell, 1905 (type genus *Pseudococcus* Westwood, 1840), by giving it precedence over the senior

 Accepted by C. Hodgson: 11 Jan. 2010; published: 16 Mar. 2010