

## Key to the genus of Family Pseudococcidae in Egypt (Hemiptera : Coccoidea)

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### ABSTRACT

A key to the genus of family Pseudococcidae ( Hemiptera : Coccoidea ) in Egypt, based on the morphological characters of the adult females, is presented.

**Keywords:** Pseudococcidae, Coccoidea, Egypt.

### INTRODUCTION

Family Pseudococcidae is the second largest family of Coccoidea, with about 2,000 sp. belong to 280 genera worldwide ( Ben-Dov *et al*, 2010). In Egypt 50 species belonging to 29 genus are specified. This family is the second family of super family Coccoidea presented in the collection of the Egyptian ministry of Agriculture ( Mohammad and Ghabbour, 2008).

This group of mealy bug contains a proportion of injurious species attacking various fruits and other cultivated plants. They feed on different parts of plants including roots, trunks, stems, leaves, buds and fruits. Mealy bugs are important pests of crops. They are easily transported between countries on important and exported agriculture products, such as fruits. Thus, they are of major concern to quarantine agencies and mealy bugs that are intercepted in international agricultural trade have to be quickly and accurately identified.

The present paper may serve for economic entomologist and other scientists engaged in plant protection. Likewise it should be useful to specialists, workers in quarantine service and students. A renewed key to genus is presented to help in identifying mealy bugs of Egypt.

### MATERIALS AND METHODS

Information for the character was compiled from the literature , i.e. (Hall 1922, 1923,1924,1925, 1926, 1926 a, 1926 b); (Ferris, 1950, 1953); (Priesner and Hosny, 1935); (Ezzat, 1960, 1960 a, 1960b,1960c,1960d, 1961, 1962, 1962a, 1962b, 1962c, 1963), (McKenzie, 1961); (Ezzat and Rashad, 1962); (Williams, 1970); (Ben-Dov, 1975,1994); (Williams and Watson, 1988); (Abou- Elkair and Karam, 1994), (Mohammad *et al*. 1995), (Danzig & Miller, 1996); (Abou-Elkhair, 1999); (Danzig, 2001); (Abd-Rabou *et al*. 2010) and (Ben-Dov *et al*. 2010).

### RESULT

#### Key to genera of Pseudococcidae in Egypt based on the characters of the adult female

1. Legs absent. Antennae reduced from 1 to 3 segmented stubs. Body in fully mature; relatively heavily sclerotized ..... 2
- Legs present. Antennae with 5 or more segmented. Body not heavily sclerotized at maturity.....3

- 2 (1). With a roughly depressed area containing numerous very small tubular ducts situated on venter behind each posterior spiracle. Abdominal segments differentiated, their lateral margin step like in appearance.....*Chaetococcus* Maskell  
Without such an area of very small tubular ducts behind each posterior spiracle. Posterior segments of abdomen less strongly differentiated; their lateral margin not step like..... *Antonina* Signoret
- 3 (1). Cerarii entirely lacking .....*Mirococcus* Borchsenius  
Cerarii present ..... 4
- 4 (3). Dorsal tubular ducts large with orifices each surrounded by a conspicuous sclerotized area from which 1 or more setae arise..... *Ferrisia* Fullaway  
Dorsal tubular ducts, if present, without this combination of characters.....5
- 5 (4). Trilocular pores absent, replaced both dorsally and ventrally by quinquelocular pores..... *Heterococcus* Ferris  
Trilocular pores present or absent and if absent, they are not replaced by quinquelocular pores .....6
- 6 (5). With at least a few enlarged and elongated tubular ducts, each of which with orifices at the apex of sclerotized tubercle with setae on its side..... *Heliooccus* Sulc  
Never with such ducts.....7
- 7(6). Dorsal multilocular pores arranged in groups, each group with a tubular duct..8  
Dorsal multilocular pores not thus arranged .....9
- 8(7). Circulus absent. Quinquelocular pores on dorsum and venter. Dorsal tubular ducts of one size.....*Peliococcopsis* Borchsenius  
Circulus present or absent. Quinquelocular pores on venter only. Dorsal tubular ducts mainly of two sizes.....*Peliococcus* Borchsenius
- 9 (7). Anal ring with more than 6 anal ring setae.....*Formicococcus* Takahashi  
Anal ring with 6 anal ring setae..... 10
- 10 (9). Anal ring entirely without pores, consisting of simple, sclerotized ring bearing 6 exceedingly small setae.....*Humococcus* Ferris  
Anal ring with at least a few pores, however much it may be reduced.....11
- 11(10). Trilocular pores lacking, replaced by multilocular pores over the entire body.....*Misericoccus* Ferris  
Trilocular pores present..... 12
- 12(11). Tubular ducts of the collar type only, arranged in pairs and the two ducts of a pair are not equal in size..... *Erimococcus* Ezzat  
Dorsal tubular ducts not thus arranged.....13
- 13(12). Circulus large, hourglass-shaped. Last four abdominal segments each with a long seta on each lateral margin .....*Saccharicoccus* Ferris  
Circulus, if present, not shaped as above. Long setae present on anal lobes only..... 14
- 14(13) Trilocular pores very sparse , not enough to show the usual pattern of their distribution to the extent of being absent or rare in the cerarian areas.....*Octococcus* Hall  
Trilocular pores normally numerous, distributed over both surfaces in the usual pattern.....15
- 15(14). Dorsum with stout setae, each with a trilocular pore adjacent to its socket.....*Spinococcus* Borchsenius  
Dorsum without such combination of stout setae and trilocular pore adjacent to its socket .....16
- 16(15). Anal lobes cerarii with several stout, more or less acorn- shaped setae.....*Amonostherium* Morrison & Morrison

Anal lobes cerarii without several stout, more or less acorn- shaped setae.....	17
17(16). Cerarii numbering 18 pairs. Anal lobe bar present.....	<i>Planococcus</i> Ferris
Cerarii numbering 18 pairs or fewer. Anal lobe bar present or absent.....	18
18(17). Anal lobe sclerptized bar very distinct, narrow. Antennae 7 or 8 segmented. Without oral -rim tubular ducts. Claw without a denticle.....	<i>Crisicoccus</i> Ferris
Anal lobe bar absent and if present, not with this combination of characters .....	19
19 (18). Tubular ducts discoidal.....	<i>Kiritshenkella</i> Borchsenius
Tubular ducts elongate .....	20
20(19). Cerarii of usual type absent, but remnant of C18 present near anal ring. Anal ring incomplete and surrounded by concentration of filamentous setae. Cluster of large discoidal pores anterior of anal ring.....	<i>Trabutina</i> Marchal
Without this combination of characters .....	21
21 (20). Antenna 6 segmented only; dorsal body setae not similar to cerarian setae.....	<i>Euripersia</i> Borchsenius
Antennae more than 6 segmented. Dorsal body setae similar or not to cerarian setae.....	22
22(21). Oral-rim tubular ducts present. Antenna 9 segmented.....	<i>Maconellicoccus</i> Ezzat
Oral - rim tubular ducts absent and if present, antennae fewer than 9 segmented.....	23
23(22). Quinquelocular pores present.....	24
Quinquelocular pores absent .....	25
24(23). Quinquelocular pores present on dorsum. Antennae with 6 or 7 segmented. Cerarii numbering 4 pairs at most.....	<i>Brevennia</i> Gous
Quinquelocular pores. If present, on venter only. Antennae with 9 segmented. Cerarii numbering 8 - 18 pairs.....	<i>Phenacoccus</i> Cockerell
25(23). Cerarii without auxiliary setae.....	<i>Nipaeococcus</i> Sulc
Cerarii with auxiliary setae.....	26
26(25). Cerarii with auxiliary setae on anal lobe only.....	<i>Spilococcus</i> Ferris
Cerarii with auxiliary setae on more than anal lobe .....	27
27(26). Multilocular pores absent from dorsum.....	<i>Pseudococcus</i> Westwood
Multilocular pores present on dorsum in a few number.....	28
28(27). With oral rim tubular ducts.....	<i>Vryburgia</i> De Lotto
Without oral rim tubular ducts.....	29
29(28). With not more than 17 pairs of cerarii. Antennae 8 segmented.....	<i>Dysmicoccus</i> Ferris
With not more than 7 pairs of cerarii. Antennae 6-8 segmented.....	<i>Trionymus</i> Berg

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### ARABIC SUMMARY

#### مفتاح لتمييز أجناس فصيلة Pseudococcidae في مصر ( Hemiptera:-Coccoidea )

زينات كمال الدين محمد - فاطمة عبد الحليم محرم  
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تم تصميم مفتاح تصنيفي للتمييز بين الأجناس الممثلة لفصيلة Pseudococcidae في مصر بناء على الصفات المميزة للحشرة الكاملة (إناث).