

UPDATING NOMINATION OF THE PARASITIDS OF PINK HIBISCUS MEALYBUG, *MACONELICOCCLUS HIRSUTUS* (HOMOPTERA: PSEUDOCOCCIDAE) IN EGYPT

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Abstract

This study was carried out to update the nominations of *Maconellicoccus hirsutus* (Green) (Homoptera: Pseudococcidae) parasitoids in Egypt. Eight primary parasitoids and five hyperparasitoids associated with the pest were collected. Four parasitoids and three hyperparasitoids were corrected and reidentified. The new list are :

Primary parasitoids:

1. *Allotropa* sp.
2. *Anagyrus kamali* Moursi
3. *Clausenia josefi* Rosen
4. *Gyranusoida indica* Shafee, Alam and Agarwal
5. *Leptomastidea abnormis* (Girault)
6. *Leptomastix algerica* Trjapitzin
7. *Leptomastix nigrocoxalis* Compere
8. *Rhopus nigriclavus* (Girault)

Hyperparasitoids:

1. *Chartocerus subaeneus* (Foerster)
2. *Marietta leopardina* (Mot.)
3. *Pachyneuron* sp.
4. *Prochiloneurus aegyptiacus* (Mercet)
5. *Prochiloneurus annulatus* (Ferriere)

INTRODUCTION

The pink hibiscus mealybug (PHMB), *Maconellicoccus hirsutus* Green, is a very prolific pest (384-540 eggs laid per female) (Mani,1989)) that completes its life cycle in 23-29 days (Ghose,1972). It injects a toxin at the point of feeding site, causing severe distortion of leaves, new shoots, and fruits (Williams,1996). The insect is very economic importance because it has a wide host range (approximately,125 host species Mani,1989).

The pest was first introduced into Egypt in about 1908, presumably from India, and then was distributed all over the country (Hall,1925). Many insecticides failed to control this mealybug. So, biological control proved to be the best tool of controlling this pest .

Most successful mealybug biological control programs have used encyrtid parasitoids, and *Cryptolaemus montrouzieri* Mulsant (Coleoptera : Coccinellidae). Indeed, PHMB have long been reported to be primarily controlled by a complex of encyrtids. Some parasitoids attacking PHMB which attacks many economic plants in Egypt were reported (Priesner and Hosny, 1940; Moursi, 1948 and Hamed and Hassanein 1991).

Abd-Rabou (2000) and Mousa *et al.* (2001) published two separate lists of parasitoids attacking PHMB in Egypt . Because the nomination of the two authors were contradicting, it was necessary to make confirmations. The current study was carried out to update and confirm the list of parasitoids and hyperparasitoids associated with *Maconellicoccus hirsutus* .

MATERIALS AND METHODS

Portions of growing tips of hibiscus shrubs, *Hibiscus rosa sinensis* having the nymphs and adult females were picked up. The portions were introduced into wooden boxes (15x25x40cm),each was provided with four glass tubes, fixed at each box side .The emerging parasitoids was attracted to light, and thus entered the tubes. The portions of plants infested with PHMB were substituted with new ones every week.

A survey of PHMB parasitoids was carried out at Cairo, Giza , Northern Delta and Alexandria regions for ten months (i.e.February to November 2003).

A set of the collected specimens of PHMB parasitoids were sent to two systematic laboratories . The first, Prof. Dr. Mohammed Hayat, Aligarh Moslem University, India. The sccond one set was sent to Dr. Gerg Evans, University of Florida, USA for confirmation. The latter Systematic laboratory is the leading authority for identification of these parasitoids.

RESULTS AND DISCUSSION

Systematic labs at India and USA identified the specimens of the parasitoids collected from pink mealybug nymphs as follows:

Primary parasitoids:

1. *Allotropa* sp.
2. *Anagyrus kamali* Moursi
3. *Clausenia josefi* Rosen
4. *Gyranusoida indica* Shafee, Alam and Agarwal

5. *Leptomastidea abnormis* (Girault)
6. *Leptomastix algerica* Trjapitzin
7. *Leptomastix nigrocoxalis* Compere
8. *Rhopus nigriclavus* (Girault)

Hyperparasitoids:

9. *Chartocerus subaeneus* (Foerster)
10. *Marietta leopardina* (Mot.)
11. *Pachyneuron* sp.
12. *Prochiloneurus aegyptiacus* (Mercet)
13. *Prochiloneurus annulatus* (Ferriere)

Tabl 1. Recent and previous identifications of pink hibiscus mealybug parasitoids and hyperparasitoids

Recent identification	Previous identification
Primary parasitoids	
Anagyrus kamali Moursi	Anagyrus pseudococci (Girault)
Clausenia josefi Rosen	Clausenia sp.
Leptomastix nigrocoxalis Compere	Leptomastix sp.
Hyperparasitoids	
Chartocerus subaeneus (Foerster)	Chartocerus sp.
Marietta leopardina (Mot.)	Marietta sp.
Prochiloneurus aegyptiacus (Mercet)	Prochiloneurus javanicus (Ferriere)

In the present work, 4 primary parasitoids and 3 hyperparasitoids associated with PHMB in Egypt were corrected and identified Table 1.

The following parasitoids were not subject to reidentification :

Anagyrus egyptiacus, *A. kamali*, *Gyranusoida indica*, *Leptomastix nigrocoxalis* and *Rhopus nigriclavus*; hyperparasitoids *Chartocerus subaeneus*, *Marietta leopardina*, *Pachyneuron* sp., *Prochiloneurus egyptiacus* , *P. annulatus* .

The primary parasitoids previously identified as *Anagyrus pseudococci* (Girault) was updated *A. kamali*, *Clausenia* sp. to *Clausenia josefi* Rosen and *Leptomastix* sp. to *L. nigrocoxalis* Compere. The hyperparasitoids were shifted from *Chartocerus* sp. to *C. subaeneus* (Forester), *Marietta* sp. to *M. leopardina* (Mot.), and *Prochiloneurus javanicus* (Ferriere) to *Prochiloneurus aegyptiacus* (Mercet).

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تحديث قائمة الطفيليات المتخصصة على بق الهبسكس الدقيقى فى مصر

شعبان عبد ربه و أحمد سمير هندأوى

أجرى هذا البحث لتحديث قائمة الطفيليات الحشرية الأولية و الثانوية على حشرة بق الهبسكس الدقيقى فى مصر، حيث تم تسجيل ثمانية طفيليات أولية و خمسة ثانوية وكذا تم تصحيح و إعادة تعريف أربعة طفيليات أولية و ثلاثة ثانوية . و القائمة الجديدة هي :
أ. الطفيليات الأولية هي :

Allotropa sp., *Anagyrus kamali* Moursi , *Clausenia joseff* Rosen, *Gyranusoida indica*
Shafee, Alam and Agarwal, *Leptomastidea abnormis* (Girault) , *Leptomastix algerica*
Trjapitzin, *Leptomastix nigrocoxalis* Compere, *Rhopus nigriclavus* (Girault)

ب. الطفيليات الثانوية هي :

Chartocerus subaeneus (Foerster) , *Marietta leopardina* (Mot.), *Pachyneuron* sp.,
Prochiloneurus aegyptiacus (Mercet) , *Prochiloneurus annulatus* (Ferriere)