

## SURVEY OF SCALE INSECTS ( COCCOIDEA) INFESTING DATE PALM AND THEIR NATURAL ENEMIES IN EGYPT

ABD-RABOU SH. AND G. H. MOHAMAD

Plant Protection Research Institute, ARC, Dokki, Giza

(Manuscript received 15 August 2007)

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### Abstract

A survey study concerning scale insects infesting date palm trees from different localities in Egypt was conducted during 2005-2006. The results registered nine species belonging to three families. These species are: *Aidovaspis phoenicis* Gerson & Davidson (Family: Asterolecaniidae), *Chrysomphalus aonidum* (L.), *Chrysomphalus dictyospermi* (Morgan), *Diaspis boisduvalli* Signoret, *Florinia fiorinae* (Targioni-Tozzetti), *Florinia linderiae* Takagi, *Mycetaspis personata* (Comstock) and *Parlatoria blanchardii* (Targioni-Tozzetti) (Family: Diaspididae) and *Phoenicococcus marlatti* Cockerell (Phoenicococcidae). Five parasitoids and 8 predators were recorded associated with these scale insects. Two of them, *Aphytis mytilaspidis* (Le Baron) and *Coccinella undecimpunctata* L. are new records in Egypt.

### INTRODUCTION

Scale insects attacks growing parts of the palm trees including leaf stalks, leaflets and fruits. The damage is reflected as leaf withering, palm stunting, fruit disfigurement and weakness the whole tree by covering infested parts so thickly that normal transpiration and photosynthesis are negatively affected (Gharib (1973), Shrif and Wajih (1983) and Ezz *et al.* (1984). Scale insects attacking date palm trees have been attracted many workers in Egypt e.g. Ezz ( 1972), Salama (1972), Saad (1980), Aly (1984), Ezz *et al.* (1984), Ghabbour and Mohammed (1996), Abdel Wahab and Mousa (1998), El-Sherif *et al.* (1998), Mousa *et al.* (1999a, 1999b) and Abd-Rabou *et al.* (2002). Saad, 1980, Abd-Rabou, 2000, Abd-Rabou and Hendawy, 2000 and Abd-Rabou and Mostafa 2005 and 2006 recorded many parasitoids associated with these pests . Predators of some scale insects attacking date palm were recorded by El-Sherif *et al.* , 1998 and Abd-Rabou and Mostafa ,2006.

The aim of this work, a survey of scale insect pests infesting date palm and their natural enemies in Egypt.

### MATERIALS AND METHODS

A survey was carried out all over Egypt during 2005-2006. Infested date palm trees with the scale insect species were examined in the field, using a pocket lens.

Leaflet were collected and placed separately in paper bags for further examination in the laboratory. Identification of the scale insect species was made by examining its adult in Canada balsam. Materials were also kept in a well-ventilated container until the emergence of any parasitoids. Also predators were recorded and identified.

## RESULTS AND DISCUSSION

### I. Scale insect species and their distribution in Egypt

Nine scale insect species belonging to three families were registered in 6 localities Table (1) . Ezz ( 1972), recorded *A. phoenicis* for the first time in Egypt. While Aly (1984) recorded *C. aonidum* for the first time in Egypt. Abdel Wahab and Mousa (1998), Mousa *et al.* (1999b), Abd-Rabou and Hendawy (2000) Abd-Rabou and Moustafa (2006) studied the economic impotence of *P. blanchardii* in Egypt. *P. marlatti* Cockerell recorded as a key pest of scale insects on date palm by Mousa *et al.* (1999a). While *M. personata* recorded as a second scale insect pest by Salama (1972) and Abd-Rabou *et al.* (2002). *Chrysomphalus dictyospermi* (Morgan), *Diaspis boisduvalli* Signoret and *Fiorinia fioriniae* (Targioni-Tozzetti) recorded as a host plant of date palm in Egypt by Ghabbour and Mohammed (1996).

### II. List of Parasitoids associated with different scale insects attacking date palm in Egypt

Table (2) observed *A. Phoenicis* and *M. personata* each associated with one parasitoid, while *P. blanchardii* associated with three parasitoids. *P. marlatti* and *C.aonidum* recorded without any parasitoids in the locations under consideration. These pests recorded associated with the parasitoids, *Aphytis phoenicis* De Bach & Rosen, *Encarsia citrina* (Craw.) and *Pteroptrix* sp. (Abd-Rabou and Hendawy,2000). *Aphytis* sp. and *Encarsia lounsburyi* (Saad, 1980, Abd-Rabou, 2000, Abd-Rabou and Mostafa ,2006 ) .

### III. List of predators associated with different scale insects attacking date palm in Egypt

Table (3) included 5 species from family Coccinellidae and 3 species from family Chrysopidae . No predators were collected associated with *A. Phoenicis* and *C.aonidum* during the present work.

The predators *Chilocorus bipustulatus* L., *Chrysopa carnea* Steph., *Chrysopa vulgaris* , *Rodalia cardinalis* Muls. and *Scymnus syriacus* Muls. , *Scymnus punetillum* Westwood and *Atheta* sp. were collected by Abd-Rabou and Mostafa ,2006 and El-Sherif *et al.* , 1998.

Table 1. Scale insect species and their distribution in Egypt

Scale insect species	Family	Locality	Date
<i>Aidovaspis phoenicis</i> Gerson & Davidson	Asterolecaniidae	El-Arish	August, 2005
<i>Chrysomphalus aonidum</i> (L.)	Diaspididae	Giza	September, 2006
<i>Chrysomphalus dictyospermi</i> (Morgan)	Diaspididae	Giza,	July , 2005
<i>Diaspis boisduvalli</i> Signoret	Diaspididae	Cairo	October, 2005.
<i>Fiorinia fioriniae</i> (Targioni-Tozzetti)	Diaspididae	Beni-Suef	August, 2006.
<i>Fiorinia linderiae</i> Takagi	Diaspididae	Giza,	May, 2006.
<i>Mycetaspis personata</i> (Comstock)	Diaspididae	Alexandria	October, 2005
<i>Parlatoria blanchardii</i> (Targioni-Tozzetti),.	Diaspididae	Giza	November, 2005
<i>Phoenicococcus marlatti</i> Cockerell,.	Phoenicococcidae	Qalyubiya	November, 2006

Table 2. Parasitoids associated with different scale insects attacking date palm in Egypt

Parasitoid species	Scale insect host	Locality	Date	Remarks
<i>Aphytis phoenicis</i> De Bach & Rosen	<i>Aidovaspis phoenicis</i> Gerson & Davidson	El-Arish	August, 2005	-
<i>Aphytis mytilaspidis</i> (Le Baron)	<i>Mycetaspis personata</i> (Comstock)	Alexandria	October, 2005.	1 <sup>st</sup> time*
<i>Encarsia citrina</i> (Craw.)	<i>Parlatoria blanchardii</i> (Targioni-Tozzetti),	Giza	November, 2005.	-
<i>Encarsia lounsburyi</i> Berl.	<i>P. blanchardii</i>	El-Arish	October, 2005.	-
<i>Pteroptrix aegyptiacus</i> Evans & Abd-Rabou	<i>P. blanchardii</i>	Giza	September , 2006.	-

\* 1<sup>st</sup> time = this species recorded here for the first time in Egypt.

Table 3. predators associated with different scale insects attacking date palm in Egypt

Predator species	Scale insect host	Locality	Date	Remarks
I. Family: Coccinellidae				
<i>Chilocorus bipustulatus</i> L.	<i>Parlatoria blanchardii</i> (Targioni-Tozzetti)	El-Arish	November , 2006	<i>P. blanchardii</i>
<i>Coccinella septempunctata</i> L.	<i>Mycetaspis personata</i> (Comstock)	Alexandria	August, 2005.	1 <sup>st</sup> time*
<i>Rodalia cardinalis</i> Muls.	<i>Phoenicococcus marlatti</i> Cockerell	Qalyubiya	November, 2006	-
<i>Scymnus syriacus</i> Muls.	<i>Parlatoria blanchardii</i> (Targioni-Tozzetti)	Giza,	September , 2006	-
<i>Scymnus punetillum</i> Westwood	<i>P. blanchardii</i>	Giza,	September 2006	-
II. Family: Chrysopidae				
<i>Atheta</i> sp.	<i>P. marlatti</i>	Qalyubiya	November, 2006.	-
<i>Chrysopa carnea</i> Steph.	<i>P. blanchardii</i>	Giza,	November , 2006.	-
<i>Chrysopa vulgaris</i>	<i>P. marlatti</i>	Qalyubiya	November, 2006.	-

\* 1<sup>st</sup> time = this species recorded here for the first time in Egypt.

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## الحشرات القشرية التي تصيب نخيل البلح والأعداء الحيوية المصاحبة لها في مصر

شعبان عبدربه ، جمال الدين حسين محمد

معهد بحوث وقاية النباتات ، مركز البحوث الزراعية ، الدقى ، جيزة

أجرى فى هذا البحث حصر للحشرات القشرية التي تصيب نخيل السبلح والأعداء الحيوية المصاحبة لها فى أماكن مختلفة من بعض محافظات مصر خلال عامى ٢٠٠٥، ٢٠٠٦. وقد أظهرت النتائج إصابة نخيل البلح بتسعة أنواع من الحشرات القشرية تنتمى الى ثلاثة فصائل حشرية وهذه الأنواع هى :

١. حشرة النخيل القشرية
٢. حشرة البرسوناتس القشرية
٣. حشرة بارلاتوريا النخيل القشرية
٤. الحشرة القشرية السوداء
٥. حشرة النخيل الحمراء القشرية
٦. حشرة الدكنيوسيرم القشرية
٧. حشرة بوسدوفال القشرية
٨. حشرة الفيورنيا القشرية
٩. حشرة الفيورنيا ذات الورقة القلبية القشرية

ومن خلال العمل أيضا تم تسجيل ٥ طفيليات و ٨ مفترسات مصاحبة لهذه الحشرات القشرية منهم نوعين سجلا لأول مرة فى مصر وهما:

الطفيل (*Aphytis mytilaspidis* (Le Baron)

، المفترس *Coccinella undecimpunctata* L.