

WHITEFLIES (HOMOPTERA: ALEYRODIDAE), SCALE INSECTS (HOMOPTERA: COCCOIDEA) AND THEIR PARASITIDS IN QENA GOVERNORATE (UPPER EGYPT)

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(Manuscript received March, 2002)

Abstract

The present work dealt with the survey of whiteflies (Aleyrodidae), scale insects (Coccoidea) and their parasitoids as well as host plant and distribution of these species in Qena governorate during 2000-2001. Ten species of whiteflies and twenty nine species of scale insects were recorded in Qena governorate.

INTRODUCTION

Qena is the largest governorate in Upper Egypt, which is characterized by special weather conditions. Climatic factors has greatly influenced and at least restricted the distribution and abundance of animal and plant population (Huffaker and Gutierrez, 1990).

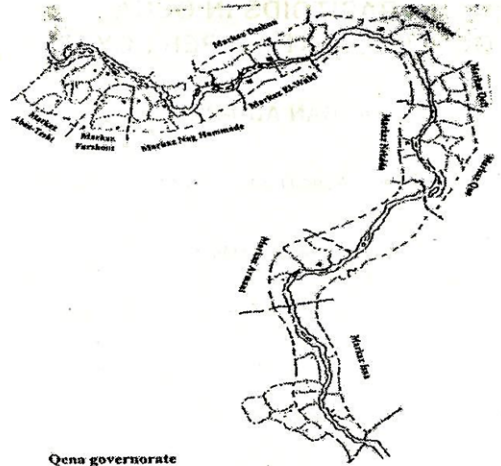
Priesner and Hosny (1940) recorded some species of scale insects and whiteflies from Qena governorate. Later, Bink-Moenen (1983) and Abd-Rabou, (1997,2000a,b) recorded several species for these pests in the same governorate.

The aim of the present work is to record the whiteflies, scale insects and their parasitoids in Qena governorate (Upper Egypt).

MATERIALS AND METHODS

A survey was carried out all over Qena governorate during 2000-2001.

The infested host plants were examined in the field, using a pocket lens. Leaves from the different host plants were collected and placed separately in paper bags for further examination in the laboratory. Identification of whiteflies and scale insects were made by examining their pupal case mounted in Canada balsam, according to Abd-Rabou (1990) as follows:



The materials kept in a well-ventilated container until the emergence of any parasitoids occurred.

The material was soaked in 10% aqueous solution of potassium hydroxide in glass vials, which were put in a waterbath at 60°C for 30 minutes. The specimens were washed several times with distilled water, then soaked in 70% alcohol. Fat was dissolved by keeping the material 24 hours in chloral phenol, then removed by washing the specimens with 70% alcohol. Carbolie basic fuchsin was used, as a staining agent, after clearing with alcohol 70% then 90% for final dehydration. The specimens were cleared in carbol-xylool (one-minute), then tin clove oil for 24 hours and mounted in Canada balsam. Mounted specimens were examined using a stereomicroscope with a mounted square eyepiece. Identification of parasitoids was made by examining their adult mounted in Hoyer's medium as follows:

1. The specimens must be very dry before clearing and mounting and the drying time varies with specimen size.
2. Put 5 drops of mixture of glacial acetic acid (10 parts) and chloral phenol (1 part) into a cell on a plastic or glass cell culture well plate, with a lid.
3. Put the parasite specimen(s) into the cell with micromanipulation tools and add an additional drop of chloral phenol. Host remaining from isolated samples may be run through the clearing process in the cell with its associated parasite.
4. Maintain the parasite in this solution for 36-48 hours or until the specimens is appropriately cleared. The specimens become very soft during the clearing process. Holding the specimens for longer than 48 hours may cause the dissolution of membrane,

Table 1. Whiteflies and scale insects recorded from different localities in Qena Governorates during 2000-2001.

Family	Species	Common name	Host plant	Parasitoid	Locality	Marital examined:
1. Whiteflies (Aleyrodidae)						
Family Aleyrodidae						
	1. <i>Acaudaleyrodus rachipora</i> (Sngl)	The black aleurodid	<i>Alhagi maurorum</i>	<i>Encarsia davidi</i> Viggiani	Markaz Armant	10 pupal case, Sept. 2000
	2. <i>Aleurocanthus zizyphi</i> Prisenner & Hosny	Nebk whitefly	<i>Zizyphus spina-christi</i>	<i>Encarsia lutea</i> (Masi) and <i>Eretmocerus</i> sp.	El-Mahamid Markaz Isna	6 pupal case, April 2001.
	3. <i>Aleurolobus marlatti</i> (Quaintance)	Mignonette whitefly	<i>Z. spina-christi</i>	<i>Encarsia elegans</i> Masi	El-Terka Markaz Dishma	14 pupal case, Aug. 2000
	4. <i>Aleuroclava porosus</i> (Priesner & Hosny)	Porosus nebk whitefly	<i>Z. spina-christi</i>	No parasitoids were recorded from this species.	Fawa Bahry Markaz Luxor	3 pupal case, Oct. 2000
	5. <i>Aleuroplatus acaciae</i> Bink-Moenen	Sunt whitefly	<i>Acacia nilotica</i>	<i>E. lutea</i>	Monshaat El-Omarry Markaz Luxor	9 pupal case, Jan. 2001
					El-Aodysaat qably	

Family	Species	Common name	Host plant	Parasitoid	Locality	Marital examined:
	6. <i>Bemisia afer</i> (Priesner & Hosny)	Sycamore whitefly	<i>A. nilotica</i>	<i>E. lutea</i> (Masi) and <i>Eretmocerus</i> sp.	Markaz Armant	10 pupal case, Jan. 2001
	7. <i>Bemisia (tabaci</i> Complex) Gennadius	Cotton whitefly	<i>Lantana camara</i> , <i>Lycopersicum</i> and <i>esculentum</i> and <i>Saccharum</i> <i>officinarum</i>	<i>E. davidi</i> , <i>E. lutea</i> , <i>Eretmocerus corri</i> Haldeman and <i>E.</i> <i>mundus</i> (Mercet)	El-Rosykat Markaz Qena and Luxor	21 pupal case, July 2001
	8. <i>Ramsessesus folioli</i> Zahradink	Egyptian whitefly	<i>A. nilotica</i>	<i>Encarsia ramsesi</i> Polaszek and <i>Eretmocerus</i> sp.	El-Ashraf Monshaat El-Omary	7 pupal case, Nov. 2000
	9. <i>Siphoninus</i> <i>phillyreae</i> Hal.	Pomegranate whitefly	<i>Punica granatum</i>	<i>Encarsia inaron</i> (Walker)	El-Marys Markaz Nag Hammade	7 pupal case, Sept. 2001
	10. <i>Tetrалеurodes</i> <i>leguminicola</i> Bink- Moenen	Leguminous whitefly	<i>A. nilotica</i>	<i>E. davidi</i> and <i>Euderomphale</i> <i>chelidonii</i> Erdos	About-Gomory Markaz Armant	12 pupal case, May 2001
					El-Waborat	

Family	Species	Common name	Hosp plant	Parasitoid	Locality	Marital examined:
II. Scale insects (Coccoidea)						
Family Acleridae	11. <i>Aclerda takahashii</i> Kuwana	Unknown	<i>Saccharum officinarum</i>	No parasitoids were recorded from this	Markaz Qus	2 females, Dec. 2000
Family: Asterolecaniidae	12. <i>Russelaspis pustulans</i> (Cockerell)	Fig pit scale	<i>Acacia arabica</i>	No parasitoids were recorded from this species	El-Mahasen Markaz Qeft	4 females, Dec. 2000
Family: Coccidae	13. <i>Ceronoma africana</i> Macfie	African wax scale	<i>Ficus nitida</i>	<i>Metaphycus</i> sp.	El-Shaahya Markaz Qena	16 females, Feb. 2001
	14. <i>Coccus hesperidum</i> L.	Brown soft scale	<i>Bambusa</i> sp.	<i>Alaptas priseneri</i> , <i>Coccophagus scutellaris</i> (Dalman), <i>Diversinervus elegans</i> Silvestri and <i>Marietta leopardina</i>	El-Tawabia Markaz Qena	23 females, March 2001
					El-Ashraf	

Family	Species	Common name	Hosp plant	Parasitoid	Locality	Marital examined:
	15. <i>Parasaissetia nigra</i> (Nietner)	Niger soft scale	<i>Ficus scymours</i>	<i>Delegans, Metaphycus africanus</i> Compere, <i>Paracerapterocerus africanus</i> Girault, <i>Scutellista cyanea</i> (Mots.)	Markaz Armant and Isna	4 females, Nov. 2001
	16. <i>Pulvinaria tenuvata</i>	Sugar cane soft scale	<i>S. officinarum</i>	<i>C. scutellaris</i>	El-Masomaa	15 females, Oct. 2000
	17. <i>Saissetia coffeae</i> (Walker)	Hemispherical soft scale	<i>Ficus nitida</i>	<i>Alaptus</i> sp. D., <i>elegans</i> , <i>C. scutellaris</i> and <i>M. leopardina</i>	El-Mahamid All over Qena governorate Markaz Luxor	12 females, Dec. 2001
	18. <i>Saissetia oleae</i> (Walker)	Mediterranean soft black scale	<i>Ficus nitida</i>	<i>C. scutellaris</i> , <i>M. leopardina</i> , <i>Metaphycus zebratus</i> (Mercet) and <i>S. cyanea</i>	El-Aodysaat qably Markaz Qena	5 females, Jan. 2001
					El-Ashraf	

Family	Species	Common name	Host plant	Parasitoid	Locality	Marital examined:
	19. <i>Waxiella mimosae</i>	Acacia wax scale	<i>Acacia tortilis</i>	<i>A. priseneri</i> , <i>Blastothrix</i> <i>erthrosethus</i> (Walker), <i>Bothriophryne acaciae</i> (Risbec), <i>M. zebratus</i> , <i>P. africanus</i> , <i>S.</i> <i>cyaneae</i> and <i>Marietta</i> <i>picta</i> (Andre')	Markaz Qena	11 females, Dec. 2001
Family: Diaspididae	20. <i>Abgrallaspis cyanophylli</i> (Signoret)	Chaff scale	<i>Ancaetus pritehardia</i>	<i>Encarsia lounsburyi</i> (Berlese & Paloli)	El-Ashraf Markaz A bou-Tesht	4 females, Feb. 2001
	21. <i>Adiscodiaspis tamaricicola</i> Malenotti	Tamarix scale	<i>Tamarix</i> sp.	No parasitoids were collected from these species	Kasr Nagaty Markaz Qus	3 females, April 2001
					El-Abassa	

Family	Species	Common name	Host plant	Parasitoid	Locality	Marital examined:
	22. <i>Aonidiella aurantii</i> (Maskell)	Red scale	<i>Ficus nitida</i>	<i>E. lounsburyi</i> and <i>M. leopardina</i>	Markaz Qena	18 females, Nov. 2000
	23. <i>Artemisaspis farsetiae</i> (Hall)	Farsetia scale	<i>Tamarax</i> sp.	No parasitoids were collected from these species	El-Ashraf Markaz Farshout	15 females, April 2001
	24. <i>Aspidaspis longilobus</i> (Hall)	Long tailed scale	<i>Tamarax</i> sp.	No parasitoids were collected from these species	El-Nogoh Markaz El-Wakf	13 females, Jan. 2001
	25. <i>Chrysomphalus aonidium</i> (L.)	Black scale	<i>Eucalyptus</i> sp.	<i>E. lounsburyi</i>	El-Qalamina Markaz Qeft	5 females, Oct. 2000
	26. <i>Chrysomphalus dictyospermi</i> (Morgan)	Dictyospermum scale	<i>Ficus nitida</i>	<i>E. lounsburyi</i> , <i>Habrolepis aspidioidi</i> Compere & Annecke and <i>M. leopardina</i>	El-Thafya Markaz Isna	3 females, June 2001
					El-Shaqab	

Family	Species	Common name	Host plant	Parasitoid	Locality	Marital examined:
	27. <i>Contigaspis zillae</i> (Hall)	Zilla scale	<i>Catalropis procera</i>	No parasitoids were collected from these species	Markaz Deshma	1 female, June 2001
	28. <i>Lineaspis striata</i> (Newstead)	Arborvitae scale	<i>Thuja ouantali</i>	No parasitoids were collected from these species	Fawa Bahry Markaz Isna	3 females, June 2001
	29. <i>Nilotaspis bicuspis</i> (Hall)	Cuspid scale	<i>A. maurorum</i>	No parasitoids were collected from these species	El-Terka Markaz Armant	11 females, Jan. 2001
	30. <i>Nilotaspis isis</i> (Hall)	Isis scale	<i>Tamarax</i> sp.	<i>E. lounsburyi</i>	El-Rosykat Markaz Farshout	7 females, April 2001
	31. <i>Parlatoria oleae</i> (Colvee)	Olive scale	<i>Oleander</i> sp.	<i>Aphytis diaspidis</i> How. And <i>M. picta</i>	El-Refayaa Markaz Qena	3 females, Dec. 2000
					El-Tawabia	

Family	Species	Common name	Host plant	Parasitoid	Locality	Marital examined:
	32. <i>Pseudotargionia glandulosa</i> (Newstead)	Acacia scale	<i>Acacia</i> sp.	No parasitoids were collected from these species	Markaz Luxor	11 females, May 2001
	33. <i>Salicicola africana</i> (Newstead)	Willow scale	<i>Salix</i> sp.	No parasitoids were collected from these species	Monshaat El-Omariy Markaz Desina	8 females, Nov. 2000
Family: Lecanodiaspididae	34. <i>Lecanodiaspis africana</i> (Newstead)	African scale	<i>Psidium guajava</i>	<i>Enargopelta nigra</i> Mercet	Fawa Bahry Markaz Luxor	7 females, May 2001
Family: Margarodidae	35. <i>Icerya aegyptiaca</i> (Douglas)	Egyptian mealybug	<i>Ficus nitida</i>	No parasitoids were collected from these species	El-Adysaat Qably Markaz El-Wakf	16 females, April 2001
Family: Pseudococcidae	36. <i>Dysmicoccus trisponosus</i> (Hall)	Unknown	Half grass	<i>Anagyrus greeni</i> Howard and <i>Leptomastix abnormis</i> (Girault)	El-Qalamina Markaz Nag Hammade	15 females, March 2000
					El-Qamana	

Family	Species	Common name	Hosp plant	Parasitoid	Locality	Marital examined:
	37. <i>Kiritchenkella sacchari</i> (Green)	Saccharum mealybug	Half grass	<i>Anagyrus pseudococci</i> (Girault)	Markaz Dshna	4 females, Dec. 2000
	38. <i>Maconellicoccus hirsutus</i> (Green)	Hibiscus mealybug	<i>Salix</i> sp.	<i>Anagyrus kamali</i> Moursi	Fawa Bahry Markaz Nag Hammade	10 females, Sept. 2001
	39. <i>Saccharicoccus sacchari</i> (Cockerell)	Pink sugar cane mealybug	<i>S. officinarum</i>	<i>L. abnormis</i> , <i>A. pseudococci</i> , <i>A. saccharicola</i> Timberlake, <i>Microterys</i> sp. and <i>Paraphaenadiscus</i> sp.	El-Showarya All over Qena Governorate	7 females, Aug. 2000

Thus, ten species of whiteflies and twenty-nine species of scale insects were collected from Qena governorate. Priesner and Hosny (1940) recorded the scale insect *P. oleae* Colv., *S. oleae* and *S. coffeae*. The whiteflies and the scale insect *A. acacia*, *T. leguminicola*, *Ramsesseus follioti*, *S. sacchari* were recorded from Qena and Luxor by Bink-Moenen (1983) and Abd-Rabou (1997 & 2000b). As to the parasitoids encountered with the different species of whiteflies, 9 species belonging to the genera *Encarsia*, *Eretomocerus* and *Enderomphale* were identified.

The parasitoids associated with the different scale insects were 29 species belonging to different genera.

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الذباب الأبيض والحشرات القشرية وطفيلياتهما في محافظة قنا

شعبان عبد ربه

معهد بحوث وقاية النباتات ، مركز البحوث الزراعية ، الدقي ، مصر.

تم في هذا العمل حصر للحشرات القشرية والذباب الأبيض والطفيليات المصاحبة لهما بالإضافة الي العوائل النباتية والتوزيع الجغرافي لهذه الأنواع في محافظة قنا أثناء الفترة من ٢٠٠٠-٢٠٠١.

وقد أظهرت النتائج أن محافظة قنا بها عشرة أنواع من الذباب الأبيض بالإضافة الي تسع وعشرون نوعا من الحشرات القشرية.