SURVEY AND LEVEL OF INFESTATION OF SCALE INSECTS (HOMOPTERA: COCCOIDEA) EXISTING IN LIBYA, WITH NEW RECORDS OF THEIR HOST PLANTS

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(Manuscript received December 2003)

Abstract

This work deals with a survey of scale insects existing in Libya during 2000-2001. It includes the level of infestation and host plants of this group of insects. Twelve species of scale insects are recorded on 23 host plant species, mostly recorded for the first time in Libya.

INTRODUCTION

Scale insects (Homoptera: Coccoidea) are of the most important pests that affect drastically economic plants in different localities in Libya. Some species of Coccids (Coccidae), Diaspidids (Diaspididae), Margarodids (Margarodidae) and Pseudococcids (Pseudococcidea) were recorded in Libya (Damiano,1961, Gentry,1965 and Nagi *et al.* 1984).Later El-Geriany *et al.* (2000) recorded 3 species of coccids, 2 species of diaspidids and 2 species of mealybugs. Little work was done on the host plants and natural enemies of scale insects in Libya. The present work deals with a survey on scale insects and their level of infestation, host plants and their distribution in Libya.

MATERIALS AND METHODS

Samples of scale insects species were collected from various host plants from January 2000 till December 2001 in different locations in El-bida, Libya. Scale insects infesting leaves, leaflets, stems and fruits from different host plants were counted. The specimens were prepared for microscopic examination according to the method described by Abd-Rabou (1990) . Specimens of scale insects and their host plants were

identified and confirmed by the first author and the Department of Horticulture, Faculty of Agriculture , University of Omar El-Mohkater , Libya.

RESULTS AND DISCUSSION

During the present work 12 species of scale insects that attacking 22 host plants were recorded Table 1.

The data collected showed the 6 species of coccids were observed to infest 16 host plants species. *Ceroplastes rusci* L., *Saissetia oleae* (Oliver) and *Coccus hesperidum* L. attacking the largest numbers of host species plants (Table 2). Economic host plants as *Ficus carica* (fig) were highly infested by *C. rusci*, while *Oleae europea* (olive), *Citrus* sp. (citrus) and *Prunus arameniaca* (apricot) were highly infested by *S. oleae*. On the other hand *Vitis vinifera* (vine) were infested at a medium level by *C.rusci*.

Host plants as *Chlorophytum comosum*, *Washingtonia filifera*, Johnsons grass and *Philodendrons scandens* were infested by *C. rusci*, while *Cycus revolute* was infested by *C.floridensis*. *P. arameniaca* and *Asparagus densiflorus* were infested by *S.oleae*; *F. carica* was infested by *Eulecanium corni* Bouche while *Euphorbia pulcherrima*, *Ficus elastica variegate* and *Hedera helix* were infested by *C.hesperidum* and all these plants are recorded for the first time being attack by these coccids in Libya.

Table (1) also shows that 4 species of diaspidid infested 9 host plants. *Aspidiotus hedreae* Vall. attacking the largest numbers of species of host plants Table 2.

Economic host plants, *Pyrus malus* (apple) and *Pyrus communis* (pear) were highly infested by *Parlatoria oleae* (Colv.) , while citrus were highly infested by *Parlatoria ziziphi* (Lucas.). On the other hand the citrus were infested at a medium level by *Aonidiella aurantii* (Lucas.).

Ficus elastica variegate was infested by *A. aurantii* while *Zizyphus spinachristi*, *Hedra helix* were infested by *A. hedreae*.These plants are recorded for the first time being attack by these diaspidids in Libya.

The rest of the group of scale insects are represented by pseudococcidae, as one species represented by, *Planococcus citri* (Risso) which attack 7 host plant species Table 1. Citrus were medium infested by this species.

Host plants *Nerium oleander*, *Philodendrons scandens*, *Asparagus densiflorus*, *Ruscus aculeatus*, *Syngonium podophllum* were also infested by *P. citri* and are recorded for the first time to be attack by this pseudococcid species in Libya.

The margarodid species, *Icerya purchasi* Mask. was recorded to attack 3 host plants Table 1 at a medium level of infestation. . Host plants *Rosa* sp. and *Ficus* sp. were recorded for the first time to be attack this margarodid species in Libya Table 1.

Table 1. Scale insects and their host plants that recorded in Libya during 2000-2001

Family	Species	Host plants	Level of infestation	Date of collection
Coccidae	*Ceroplastes floridensis* Comstock	*Cycus revolute**	+ + +	April,2000-November,2001
	Ceroplastes rusci (Linnaeus)	*Chlorophytum comosum**	+ +	April,2000
		Ficus carica	+ + +	All year
		Ficus elastica variegate	+ +	April,2001
		Johnsons grass*	+ +	October,2000
		*Philodendrons scandens**	+	November,2001
		Vitis vinifera	+ +	April,2001
		*Washingtonia filifera**	+ +	May,2001
	Coccus hesperidum L	*Citrus* sp.	+ +	June,2000-February,2001
		*Euphorbia pulcherrima**	+ +	October,2000
		*Ficus elastica variegate**	+ +	April,2001
		*Hedera helix **	+	December,2001
	Eulecanium corni Bouche	*Ficus carica**	+ +	June,2001

Table 1. Cont.

Family	Species	Host plants	Level of infestation	Date of collection
	Philippia corni Bouche	*Oleae europea*	+	All year
	Saissetia oleae (Oliver)	*Citrus* sp.	+ + +	All year
		Nerium oleander	+ + +	All year
		Prunus arameniaca *	+	June, 2000
			+ + +	All year
		Oleae europea		
Diaspididae	*Aonidiella aurantii* (Maskell)		+ +	All year
		Citrus sp.		
			+ +	November, 2001
		*Ficus elastica** *variegate*		
			+ + +	All year
	Aspidotus hederea Vall.	*Hedera helix* *		
			+	November,2000-Febraury,2001
		Oleae europea		
			+ + +	All year
		Zizyphus * *spinachristi*		
			+ + +	October,2000-June,2001
		Pyrus communis		
			+ + +	September, 2000
		Pyrus malus		
			+ + +	All year
	Parlatoria oleae (Colvee)	*Citrus* sp.		
			+ +	November,2000
	Parlatoria ziziphi (Lucas)	*Asparagus* * *densiflorus*		
Pseudococcidae			+ +	October,2000
		Citrus sp.		
	Planococcus citri (Risso)		+ +	June - August,2000
		*Nerium oleander**		

Table 1. Cont.

Family	Species	Host plants	Level of infestation	Date of collection
		Philodendrons scandens*	+ +	October-November,2000
		*Ruscus aculeatus**	+ +	March-April,2000
		*Syngonium * podophllum*	+ + +	March – October,2000
		Vitis venivera	+ +	April – October,2001
		Citrus sp.	+ +	April – May,2001
Margarodidae	*Icerya purchasi* Maskell	*Rosa* sp. *	+ +	April – October,2001
		Ficus sp. *	+ +	December, 2000-January,2001

\+ Frequent
\+ + Common
\+ + + Very Common
* New records of host plants in Libya

Damiano, 1961 and Gentry, 1965 recorded *C. rusci* and *C. floridensis* to infest fig and *Tamarisk* sp., respectively. Nagi et al. 1984 recorded *P. ziziphi* as a major pest of citrus, while *P. citri* as an important pest of vine in Libya.

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حصرو مستوى الإصابة للحشرات القشرية المتواجدة فى ليبيا مع تسجيلات جديدة للعوائل النباتية التى تصيبها

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هذا العمل تضمن حصر للحشرات القشرية المتواجدة فى ليبيا أثناء الفترة من ٢٠٠٠-٢٠٠١ وقد تضمن أيضا مستوى الإصابة والعوائل النباتية لهذه الأفات. و قد تم تسجيل ١٢ نوعا من الحشرات القشرية تصيب ٢٢ عائلا نباتيا معظمها يسجل فى ليبيا لأول مره فى هذا العمل .