

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

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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 (Pseudococcoidea) 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 *Olea europaea* (olive), *Citrus* sp. (citrus) and *Prunus armeniaca* (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. armeniaca* and *Asparagus densiflorus* were infested by *S. oleae*, *F. carica* was infested by *Eulecanium corni* Bouche while *Euphorbia pulcherrima*, *Ficus elastica variegata* 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 hedrae* 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 variegata was infested by *A. aurantii* while *Zizyphus spinachristi*, *Hedra helix* were infested by *A. hedraeae*. 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	<i>Ceroplastes floridensis</i> Comstock	<i>Cycus revolute*</i>	+++	April,2000- November,2001	
		<i>Ceroplastes rusci</i> (Linnaeus)	<i>Chlorophytum*</i> <i>comosum</i>	++	April,2000
		<i>Ficus carica</i>	+++	All year	
		<i>Ficus elastica</i> <i>variegata</i>	++	April,2001	
		Johnsons grass*	++	October,2000	
		<i>Philodendrons*</i> <i>scandens</i>	+	November,2001	
		<i>Vitis vinifera</i>	++	April,2001	
		<i>Washingtonia*</i> <i>filifera</i>	++	May,2001	
		<i>Coccus hesperidum</i> L.	<i>Citrus</i> sp.	++	June,2000- February,2001
		<i>Euphorbia *</i> <i>pulcherrima</i>	++	October,2000	
		<i>Ficus elastica*</i> <i>variegata</i>	++	April,2001	
		<i>Hedera helix *</i>	+	December,2001	
		<i>Eulecanium corni</i> Bouche	<i>Ficus carica*</i>	++	June,2001

Table 1. Cont.

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

Table 1. Cont.

Family	Species	Host plants	Level of infestation	Date of collection
Margarodidae	<i>Icerya purchasi</i> Maskell	<i>Philodendrons*</i> <i>scandens</i>	+ +	October- November,2000
		<i>Ruscus aculeatus*</i>	+ +	March-April,2000
		<i>Syngonium *</i> <i>podophllum</i>	+ + +	March – October,2000
		<i>Vitis venivera</i>	+ +	April – October,2001
		<i>Citrus</i> sp.	+ +	April – May,2001
		<i>Rosa</i> sp. *	+ +	April – October,2001
		<i>Ficus</i> 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 في ليبيا مع
تسجيلات جديدة للعوائل النباتية التي تصيبها

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