

**OCCURRENCE OF SPIDERS (ARACHNIDA) IN NORTH SINAI
 GOVERNORATE, EGYPT**

BY

Gihan M.E.Sallam

Plant Protection Research Institute, Agricultural Research Center, Dokki, Giza,
 Egypt

ABSTRACT

Using plant shaking and hand sorting collecting methods at three localities namely El-Zaranik Protectorate, El-Arish Air Port and El-Sheikh Zoaid regions (North Sinai Governorate), twenty-three families of spiders were recorded in this study which conducted on three hosts (Tarfa, Wormwood and Groundcactus) from August 2003 to September 2005. In this study, 26 genera and 10 identified species were obtained. The identification of some families, genera and species is difficult in some cases. Juvenile specimens are useless and unidentifiable even to genus level. Tarfa was the most plant harboured spiders. The most dominant families recorded in this study were Araneidae, Theridiidae, Gnaphosidae, Tetragnathidae, Scytodidae, Thomisidae, Miturgidae, Oxyopidae and the less dominant families were Pholcidae, Zodariidae, Linyphiidae, Licoranidae, Mimetidae, Filistatidae, Dictynidae, Oecobiidae, Lycosidae, Hersiliidae, Eresidae and Sparassidae. *Agriope lobata* (Araneidae) and *Thomisus spinifer* (Thomisidae) were the most dominant species

Key words: Spiders, Tarfa, Wormwood, Groundcactus

INTRODUCTION

Sinai, the northeastern of Egypt, is a unique situation between Africa and Asia. According to Danin (1978), the climatic of Sinai is characterized by aridity, winter precipitation and moderate temperature. The study of its fauna is necessary to understand the zoogeographic relationships, especially spider side, between Egypt eastern desert and the Levant countries. The spiders are widely spread and diverse group occupying nearly every terrestrial habitat, in fact that they can find other arthropods to provide them a meal. Kaston (1978), Barrion and Listinger (1980) and Sallam (2002). El-Hennawy (2006) gave a list of Egyptian spiders which included 385 species and 193 genera in 40 families. The spiders are regarded as carnivorous, and can have a potential effect on the communities in which they found. They have an associated fauna of predators, prey and parasites. Abdel-Moniem *et al* (2003). The first work devoted to study Sinai spiders was that of Octavius Pickard-Cambridge (1870) Spiders as group was studied for first time in Sinai and Coastal protected areas of Egypt by El-Hennawy (2002 and 2003) However, the study of survey of spiders associated with plants in Sinai is

rare, El-Hennawy (2005), thus the aim of this investigation is to survey and explore variation in spider's communities with season and habitat in North Sinai

MATERIALS AND METHODS

The field work was conducted in North Sinai Governorate. Different desert plants examined were desert plant, Tarfa (*Tamarix* sp.), wormwood (*Artemisia inculta* Del.) and Groundcactus (*Psaltiriparus* sp.). Collecting methods were beating net (branch shaking) and hand sorting method. Shaking the plants occurred five times for each sample over shaking cloth. After shaking, the specimens were individually picked up in a plastic vial (2/5 cm), while larger ones kept in vial (3/6 cm). The hand sorting method was used to pick the individuals found around each plant and under stones beside these plants and individually kept in plastic vials of 3/6 cm.) All specimens were transferred to the laboratory for counting and identification after putting in nine centimeters containers filled with 70 % ethyl alcohol. Examination and identification were carried out with the aid of Stereomicroscope. According to their taxonomic importance, palpal and epigynum organs were preserved in small vial (0.5 x 1.5 cm) in 70 % alcohol and 5 % glycerin. The identification of specimens was executed in the light of available taxonomical knowledge followed the systems used by Petrunkevitch (1939) and Kaston (1978), taking in consideration that the group of Arachnida is poorly studied in this geographical area, El-Hennawy (2003). Juvenile spiders were identified to or family or genus level, if possible. Sampling was carried out every one month during the period from August 2003 to September 2005. The seasons examined were Summer, Spring and Autumn only.

RESULTS AND DISCUSSION

Occurrence of different families, genera and species of the collected spiders:-

During the study years, 2003 – 2005, Tarfa, wormwood and ground cactus plants had been chosen to estimate the occurrence of different spiders at El-Zaranik Protectorate, El-Sheikh Zoeid and Air Port (El-Arish) regions, North Sinai Governorate. The first two regions were examined for all the tested periods but the third region was examined during 2005 only. The spiders surveyed in these regions are listed in Table (1). Results of survey revealed the occurrence of 26 different genera belonging to 23 families. The identification was conducted for 9 specimens to family level only, Dictynidae, Dysderidae, Filistatidae, Linyphiidae, Licoranidae, Lycosidae, Mimetidae, Pholcidae, and Sparassidae. The different collected spider genera were *Benoitia*, *Argiope*, *Stegodyphus*, *Micaria*, *Pterotricha*, *Zelotes*, *Hersilia*, *Cheiracanthium*, *Oxyopes*, *Philodromus*, *Thanatus*, *Heliophanus*, *Synageles*, *Scytodes*, *Tetragnatha*, *Euryopis*, *Kochiura*, *Latrodectus*, *Paidiscura*, *Steatoda*, *Theridion*, *Thomisus*, *Tmarus*, *Runcinia*, *Xysticus* and *Zodarion*. The identification of spiders to species level occurred for 10 species i.e. *Benoitia Lepida* (Agelenidae), *Argiope lobata* Pallas and *A. trifasciata* (Araneidae), *Cheiracanthium canariense* Wunderlich (Miturgidae), *Thanatus albini* (Philodromidae), *Kochiura aulica*, *Latrodectus pallidus* Cambridge, *Paidiscura dromedaria* (Theridiidae) and *Thomisus onustus* Walckenaer and *T. spinifer* (Thomisidae). However, it was observed that the

highest number of different species was recorded for Theridiidae (3 species) followed by Araneidae (2 species).

Occurrence of different spiders in North Sinai from the period 2003 - 2005

Table (1): List of different families, genera and species collected during 2003-2005 associated with Tarfa, wormwood and Groundcactus at North Sinai governorate

Family	Genus	Species
1-Agelenidae	<i>Benoitia</i>	<i>Lepida</i> Cambridge, 1876
2-Araneidae	<i>Argiope</i>	<i>Lobata</i> (Pallas, 1772)
	<i>Argiope</i>	<i>trifasciata</i> (Forsk., 1775)
3-Dictynidae	-	-
4-Dysderidae	-	-
5-Eresidae	<i>Stegodyphus</i>	sp.
6-Filistatidae	-	-
7-Gnaphosidae	<i>Micaria</i>	sp.
	<i>Pterotricha</i>	sp.
	<i>Zelotes</i>	sp.
8-Hersillidae	<i>Hersilia</i>	sp.
9-Linyphiidae	-	-
10-Liocranidae	-	-
11-Lycosidae	-	-
12-Mimetidae	-	-
13-Miturgidae	<i>Cheiracanthium</i>	<i>canariense</i> Wunderlich, 1987
	<i>Cheiracanthium</i>	sp.
14-Oxyopidae	<i>Oxyopes</i>	sp.
	<i>Philodromus</i>	sp.
15-Philodromidae	<i>Thanatus</i>	<i>albini</i> (Audouin, 1825)
	<i>Thanatus</i>	sp.
16-Pholidae	-	-
17-Salticidae	<i>Heliophanus</i>	sp.
	<i>Synageles</i>	sp.
18-Scytotidae	<i>Scytodes</i>	sp.
19-Sparassidae	-	-
20-Tetragnathidae	<i>Tetragnatha</i>	sp.
21-Theridiidae	<i>Euryopis</i>	sp.
	<i>Kochiura</i>	<i>aulica</i> (C.L. Koch, 1838)
	<i>Latrodectus</i>	<i>Pallidus</i> O.P. - Cambridge, 1872
	<i>Paidiscura</i>	<i>dromedaria</i> (Simon, 1880)
	<i>Steatoda</i>	sp.
	<i>Theridion</i>	sp.
22-Thomisidae	<i>Thomisus</i>	<i>onustus</i> Walckenaer, 1805
	<i>Thomisus</i>	<i>spinifer</i> O.P. - Cambridge, 1872
	<i>Tmarus</i>	sp.
	<i>Runcinia</i>	sp.
23-Zodariidae	<i>Xysticus</i>	sp.
	<i>Zodarium</i>	sp.

I-) El-Zaranik Protectorate

A-) 2003

The monthly count of obtained data, Table (2) revealed that spring season was the most one containing the highest number of spider's abundance, 64 individuals followed by summer 59 and autumn 56 individuals. The 64 individuals collected belonged to 8 families during spring and more caught on wormwood plants 24 individuals followed by Tarfa and Groundcactus, 20 individuals for each. On the other hand, the Tarfa harbored more collected spiders 33 individuals during summer followed by 14 on wormwood and 11 individuals on ground cactus. The 56 individuals collected during autumn distributed only on Tarfa. The recorded spiders were classified within 14 families in El- Zaranik protectorate. The more abundant family in this study was Araneidae 38 individuals but Dysderidae and Mimetidae were recorded by one individual for each. Also, from the same table, it was observed that Araneidae and Philodromidae were the only two families inhabiting the all tested plants, the first family was recorded during both spring and summer, but the second family observed during spring only.

Table (2): Occurrence of different spiders in El-Zaranik Protectorate, North Sinai during 2003

Family	Spring	Host	Summer	Host	Autumn	Host
1-Araneidae	9	T	2	T	2	T
	4	W	5	W		
	9	G	7	G		
2-Dysderidae	0	-	1	W	0	-
3-Gnaphosidae	2	W	0	-	8	T
4-Linyphidae	0	-	1	T	1	T
5-Lycosidae	3	T	1	T	1	T
	3	G				
6-Mimetidae	0	-	1	T	0	-
7-Mituregidae	2	T	0	-	1	T
	2	G				
8-Oxyopidae	0	-	4	T	19	T
			2	W		
9-Philodromidae	1	T	14	T	7	T
	10	W	3	G		
	1	G				
10-Pholcidae	0	-	0	T	3	T
11-Salticidae	5	W	6	T	12	T
			3	W		
12-Tetragnathidae	5	T	1	T	0	-
	5	G				
13-Theridiidae	3	W	3	T	2	T
14-Thomisidae	0	-	1	T	0	-
			1	G		
Total	64		59		56	182

T= Tarfa W= Wormwood G= Groundcactus

B-) 2004

The seasonally count data in Table (3) revealed the occurrence of 12 families. The regular inspections of Tarfa, wormwood and Groundcactus through the period 2004 of the experiment revealed that the dominant spider families were Araneidae, Philodromidae, Salticidae and Tetragnathidae, represented by 40, 24, 24 and 22 individuals, respectively. The declining in the occurrence of the collected spider families occurred for Gnaphosidae, Linyphiidae, Sparassidae and Thomisidae, 2, 3, 1 and 4 individuals, respectively. From the obtained results it could be noticed that spring was the highest season obtaining individuals (71) followed by summer (55) and autumn (36) individuals.

Table (3): Occurrence of different spiders in El-Zaranik Protectorate, North Sinai during 2004

Family	Spring	Host	Summer	Host	Autumn	Host
1-Agelenidae	7	T	0	-	0	-
2-Araneidae	10	T	2	T	2	T
	5	W	2	W		
3-Gnaphosidae	10	G	9	G	1	T
	1	T	0	-		
4-Linyphiidae	1	T	0	-	0	-
	2	W				
5-Lycosidae	5	T	0	-	0	-
	5	G				
6-Miturgidae	2	T	0	-	3	T
	1	W				
	2	G				
7-Oxyopidae	3	W	1	T	11	T
			1	W		
8-Philodromidae	2	T	9	T	5	T
	2	W	4	G		
	2	G				
9-Pholcidae	0	-	0	-	0	-
10-Salticidae	4	W	5	T	6	T
			5	W		
11-Sparassidae	0	-	1	T	0	-
			2	T		
12-Tetragnathidae	6	T	2	W	3	-
	6	G	2	G		
			3	G		
13-Theridiidae	4	W	3	W	5	T
14-Thomisidae	0	-	2	G	2	-
Total	80		55		38	173

T= Tarfa W= Wormwood G= Groundcactus

C-) 2005

Considering the occurrence of spider families at El-Zaranik protectorate during 2005, Table (4) showed that the collected families were Araneidae, Dysderidae, Gnaphosidae, Gnaphosidae, Lycosidae, Miturgidae, Oxyopidae,

Philodromidae, Pholcidae, Salticidae, Sparassidae, Tetragnathidae, Theridiidae and Thomisidae.

The highest abundance of spider individuals in this region was observed in family Araneidae 62 spiders, while the lowest abundance was recorded for Dysderidae and Sparassidae (one spider for each). Also, the obtained data revealed that the spring season was the highest one obtaining individuals (87), while the autumn was the lowest (36 spider). It was also noticed that the families Araneidae and Philodromidae were the only recorded families on all tested hosts.

Table (4): Occurrence of different spiders in El-Zaranik Protectorate, North Sinai during 2005

Family	Spring	Host	Summer	Host	Autumn	Host
1-Araneidae	14	T	5	T	3	T
	7	W	7	W		
	14	G	12	G		
2-Dysderidae	0	-	1	W	0	-
3-Gnaphosidae	0	W	0	-	2	T
4-Lycosidae	3	T	0	-	1	T
	3	G				
5-Miturgidae	3	T	0	-	3	T
	3	G				
5-Oxyopidae	0	-	2	T	9	T
6-Philodromidae	2	T	10	T	8	T
	18	W	5	G		
	2	G				
7-Pholcidae	1	W	2	G	0	-
8-Salticidae	1	W	2	T	4	T
			3	G		
9-Sparassidae	0	-	1	T	0	-
10-Tetragnathidae	8	T	3	T	2	T
	8	G	2	G		
11-Theridiidae	0	W	2	W	3	T
12-Thomisidae	0	-	3	G	1	-
Total	87		60		36	183

T= Tarfa W= Wormwood G= Groundcactus

II-) El-Sheikh Zoaid region

A-) 2003

Table (5), showed that the recorded spider families during 2003 recorded were 200 different individuals for the three tested hosts. The highest abundance of recorded families was observed in Salticidae (40 individuals), while the lowest abundance was recorded for Mimetidae, Pholcidae and Sparassidae (one individual for each). The same table showed that Lycosidae, Oxyopidae, Philodromidae, Salticidae and Thomisidae were recorded on each of Tarfa, wormwood and Groundcactus. Regarding the season, it was observed that the summer was the highest one containing spider individuals (103) while the lowest one was observed for autumn (26 individuals).

Table (5): Occurrence of different spiders in El-Sheikh Zoeid, North Sinai during 2003

Family	Spring	Host	Summer	Host	Autumn	Host
1-Araneidae	4	T	6	T	0	-
	14	G	2	G		
2-Filistatidae	0	-	4	T	0	-
3-Gnaphosidae	1	T	3	T	0	-
			2	W		
4-Linyphiidae	1	W	1	T	0	-
5-Locranidae	0	-	7	T	10	T
6-Lycosidae	1	T	2	T	1	T
	3	G	2	W		
			1	G		
7-Mimectidae	0	-	1	T	0	-
8-Miturgidae	1	T	1	T	1	T
	2	W				
9-Oxyopidae	1	T	11	T	0	-
	9	W	4	W		
			1	G		
10-Philodromidae	8	T	2	T	1	T
	10	W				
	1	G				
11-Pholcidae	0	-	1	T	0	-
12-Salticidae	4	T	18	T	10	T
	3	W	4	W		
	1	G				
13-Scytotidae	0	-	5	T	0	-
14-Sparassidae	0	-	1	T	0	-
15-Tetragnathidae	2	G	7	T	0	-
16-Theridiidae	2	T	8	T	1	T
	2	W				
17-Thomisidae	1	T	3	T	2	T
			5	W		
			1	G		
Total	71		103		26	200

T= Tarfa W= Wormwood G= Groundcactus

B-) 2004

Table (6) showed that Philodromidae was the highest family obtaining collected spiders (58 individual) on Tarfa, wormwood, and Groundcactus, while the lowest one was Filistatidae (4 individuals) during summer on Tarfa. However, the collected 201 spider individuals were distributed as 73 during spring, 59 during summer and 69 during autumn. The same previously mentioned table demonstrated that the highest number of collected individuals was 29 individuals for Philodromidae spiders on Tarfa during autumn.

C-) 2005

As shown in Table (7), the collected spiders associated with Tarfa, wormwood and Groundcactus were belonging to 13 families. The number of individuals within the collected families was Araneidae (29), Filistatidae (1), Gnaphosidae (9), Linyphiidae, (4), Lycosidae (7), Miturgidae (2), Oxyopidae

(21). Philodromidae (50), Pholcidae (3), Salticidae (12), Tetragnathidae (3), Theridiidae (6) and Thomisidae (20) individuals. Data also demonstrated that Lycosidae, Philodromidae and Thomisidae were recorded on all tested hosts in this region during 2005.

III-) El-Arish Air Port Region

The survey study was conducted at El-Arish district (Air port region) during 2005 summer season only. The study proved that the collected spider families were Agelenidae (*Benoitta Lepida*), Dictynidae, Eresidae (*Stegodyphus* sp.), Hersiliidae (*Hersilia* sp.) and Zodaridae (*Zodariion* sp.)

Table (6): Occurrence of different spiders in El-Sheikh Zoeid, North Sinai during 2004

Family	Spring	Host	Summer	Host	Autumn	Host
1-Araneidae	4 12	T G	2 3	T G	11	T
2-Filistatidae	0	-	4	T	0	-
3-Gnaphosidae	0	-	1 3	T W	1	T
4-Liocranidae	0	-	15	T	0	-
5-Lycosidae	1	T	1 3 3	T W G	0	T
6-Miturgidae	3 3	W G	0	-	3	T
7-Oxyopidae	9	W	0	T W	5	T
8-Philodromidae	5 12 4	T W G	4 2 2	T W G	29	T
9-Salticidae	4	T	2 4	T W	15	T
10-Tetragnathidae	5	G	0	-	1	-
11-Theridiidae	2 3	T W	-	W	3	T
12-Thomisidae	2 4	T G	4 3 3	T W G	1	T
Total	73		59		69	201

T= Tarfa W= Wormwood G= Groundcactus

Effect of different years (2003 – 2005) and seasons (spring, summer and autumn) on the abundance of the collected spiders at North Sinai Governorate:

The present study is an attempt to explore the relation between the different years (2003, 2004 and 2005) and seasons (Spring, Summer and Autumn) on the abundance of certain common spiders associated with some desert plants (Tarfa, wormwood and Groundcactus) at certain locations of North (Sinai governorate). The simple correlation values (r 's) helping in detecting any apparent relationship between the abundance of the collected spiders and each of

the tested years and seasons The regression value (b) indicated the average rate of changes in the activity of the collected spiders due to the changes in any of the tested factors

Table (7): Occurrence of different spiders in El-Sheikh Zoeid, North Sinai during 2005

Family	Spring	Host	Summer	Host	Autumn	Host
1-Araneidae	2 9	T G	3 5	T G	10	T
2-Filistatidae	0	-	1	T	0	-
3-Gnaphosidae	1	T	2 4	T W	2	T
4-Linyphidae	1	W	0	W	3	T
5-Lycosidae	1	G	1 3 2	T W G	0	-
6-Miturgidae	0	-	0	T G	2	T
7-Oxyopidae	1 13	T W	0	-	7	T
8-Philodromidae	1 13 2	T W G	6 5 3	T W G	20	T
9-Pholcidae	0	W	3	G	0	T
10-Salticidae	3 2	W G	1 6	T W	0	T
11-Tetragnathidae	0	-	0	T	3	T
12-Theridiidae	2	W	0	-	4	T
13-Thomisidae	4 2	T G	6 2 4	T W G	2	T
Total	57		57		53	167

T= Tarfa W= Wormwood G= Groundcactus

A-) El-Zaranik protectorate

As shown in Table (8), statistical analysis of data showed that insignificantly positive relation was obtained between the abundance of spiders and different seasons and years on tarfa plants. On the other hand, the different seasons affected positive insignificantly on this abundance on wormwood and Groundcactus, but on these hosts, the different years affected as highly significantly positive on the collected true spiders. The statistical analysis of obtained data showed that L.S.D at 0.05 level = 0.9572, 0.6124 and 0.6788 for spider population on Tarfa, wormwood and Groundcactus for both years and seasons effect, respectively Also, Table (9) indicated that the season (spring, and summer) expressed as very high significantly positive during the different years (2003, 2004 and 2005) collectively on the abundance of the spiders on both Tarfa and wormwood at El-Zaranik protectorate

Table (8): Effect of season and year factors on the spider population at El-Zaranik protectorate, North Sinai governorate.

Source	Host	SS	MS	F	P
Main effect					
Season	Tarfa	9.07246	2.45362	0.558	0.5732
Interaction		20.6086	10.3043	1.2679	0.2838
Season X Year		10.6666	2.6666	0.328	0.8589
Season	Wormwood	0.3575	0.1787	0.0537	0.9477
Interaction		41.8647	20.9324	6.2913	0.0022
Season X Year		2.3091	0.5772	0.1735	0.9518
Season	Groundcactus	4.9855	2.4928	0.6098	0.5444
Interaction		45.6522	22.8261	5.5845	0.0044
Season X Year		3.0145	0.7536	0.1844	0.9463

Table (9): Simple correlation and multiple regression between the spider population and tested factors (Season and year) at El-Zaranik protectorate

Host	Simple correlation					Multiple regression		
	Season	Year	Corr. (r)	Slope (b)	Y Int. (a)	MS	F	P
Tarfa	Summer	2003	0.2687	0.1145	0.4444	47.9318	13.9636	0.0002***
		2004	0.3827	0.2302	0.3651			
		2005	0.3239	0.2083	0.2264			
	Spring	2003	0.3981	0.4364	0.5312			
		2004	0.681	0.4306	0.2391			
		2005	0.796	1.4066	-0.1811			
Wormwood	Summer	2003	0.6145	0.717	0.0419	114.7686	33.4346	0.0000***
		2004	0.516	0.8854	0.4561			
		2005	0.8025	1.4553	0.5412			
	Spring	2003	0.2185	0.1949	0.6662			
		2004	0.3728	0.5942	0.5444			
		2005	0.3213	0.2679	0.9432			

2-) El-Sheikh Zoaid region.

As appears from Table (10) a significantly positive relationship between the collected spiders abundance and seasons was observed, also, the interaction between years and seasons was significantly observed on Tarfa. On the other hand, highly significant differences were observed for the season effect and non-significant for year and the interaction between years and seasons on the spider's abundance on wormwood. However, the season effect was very highly significant for the spider abundance and insignificant for year's factor and interaction between seasons and years effect on ground cactus.

Table (11) gave the simple correlation value for the true spiders abundance on the seasons together with their level of significant during 2003, 2004 and 2005. The correlation value, Table (11) showed that Summer and Spring expressed an insignificantly positive relation on Tarfa plants, while it was insignificant positive

relation for summer effect during 2003 and 2005 and negative during 2004, but it was negative for spring effect during 2003 and 2005 and positive during 2004 for the effect of the spring factor on wormwood plants, all the relation was insignificant. The statistical analysis of data showed that L.S.D. at 0.05 value was 1.2411, 0.6388 and 0.5550 for the abundance on Tarfa, wormwood and ground cactus, respectively for both years and seasons effect. In the current study, there are differences between the families and numbers of collected spiders from region to region and from season to other and this reason may be contributed to the differences in ecological conditions in these desert localities.

Table (10): Effect of season and year factors on the spider population at El-Sheikh Zoaid, North Sinai governorate.

Source	Host	SS	MS	F	P
Main effect					
Season	Tarfa	95.4879	47.744	3.494	0.0323*
Interaction		24.8213	12.4106	0.9082	0.4049
Season X Year		166.715	41.6787	3.0502	0.0181*
Season	Wormwood	44.7246	22.3623	6.1765	0.0025***
Interaction		0.029	0.0145	0.004	0.996
Season X Year		0.9855	0.2464	0.068	0.9915
Season	Groundcactus	42.0966	21.0483	7.7016	0.0006***
Interaction		1.43	0.715	0.2616	0.7701
Season X Year		4.9469	1.2367	0.4525	0.7705

Table (11): Simple correlation and multiple regression between the spider population and tested factors (Season and year) at El-Sheikh Zoaid region

Host	Simple correlation					Multiple regression		
	Season	Year	Corr.	Slope	Y Int.	MS	F	P
			(r)	(b)	(a)			
Tarfa	Summer	2003	0.4116	0.1217	0.2524	5 7544	2.0299	0.1558
		2004	0.7045	0.7429	0.2			
		2005	0.7548	0.7184	0.1858			
	Spring	2003	0.683	0.9756	0.1983			
		2004	0.4284	0.8643	0.4975			
		2005	0	0	1			
Wormwood	Summer	2003	0.4148	0.1393	0.1144	5 5573	109604	0.163
		2004	-0.479		0.2985			
		2005	0.2349	0.1958	0.5688			
	Spring	2003	-0.0849	0.0907	1.15			
		2004	0.0992	0.092	1.2833			
		2005	-0.081	-0.0568	0.9264			

According to Cloudsley and Thompson (1983), desert spiders belong to two main ecological groups; large and long-lived (Mygalomorphidae, Lycosidae, Sparassidae and small and short-lived (Gnaphosidae, Salticidae, and Thomisidae). The obtained results are in agreement with those obtained by Abdel-Moniem *et*

al. (2003) where they observed that there were clear seasonal patterns of spider abundance, such differences were correlated to the climate change occurred through different seasons of the year, in such an arid area of South Sinai. Also, the spider activity certainly responded to dramatic change in temperature through the year (Daiqin *et al.* 1996).

It can be concluded that the activity of the collected spiders is mostly related to the single effect of season (Summer and Spring) and or / year and also the interaction between them. Like other animals, spiders have a preferred range of climatic conditions, but because of their mobility they can change altitude to maintain their preferred range, Evans 1997. Also, spiders may constitute a perfect example among groups of mobile animals for studying temporal variation in diversity and abundance, Abdel-Moniem *et al.* 2003.

The studied areas need a seasonal survey and more detailed studies for all Arachnid species to elucidate their importance in their environment. The future studies will be focused on mass rearing of the dominant species in such areas which in turn used in the biological control of different pests.

ACKNOWLEDGMENT

The authoress is greatly indebted to Mr. Hisham K. El-Hennawy who identifies the specimens and also his periodical "Serket" is a main source for specialists in the field of Arachnology.

REFERENCES

- Abdelmoniem, H.; Zalat, S.; El- Naggat, M. and Ghobashy, A. (2003): Spider diversity in relation to habitat heterogeneity and an altitudinal gradient in South Sinai, Egypt. *Egyptian J. Biology*, 5:129-137.
- Barrion, A. T. and Listinger, J. A. (1980): Taxonomy and bionomics of spiders in Philippine rice agro ecosystems. Foundation for future biological control effort. Paper presented at the 11th Ann. Conf pest control council of the Ann. Conf. Pest control council of the Philippines, Cebu City, Philippines, April 23-26.
- Cambridge, O.P. (1870): Notes on a collection of Arachnida made by J. K. Lord, Esq., in the Peninsula of Sinai and on the African borders of the Red sea. *Proc. Zool. Soc. Lond.*, pp. 818-823, p1.50.
- Cloudsley, M. and Thompson, J.J. (1983): desert adaptations in spiders. *J. of Arid Environment*, 6 (14): 307 – 317.
- Daiqin, L.; Jackson, R.R. and Mahnert, V. (1996): Prey-specific capture behavior and prey preferences of myrmicophagic and aran-eophagic jumping spiders (Araneae: Salticidae). *Revue Suisse de Zoologie*, 2: 323 - 336.
- Danin, A. (1978): Plant species diversity and ecological district of Sinai desert vegetation, 36 (2): 83 – 93.
- El-Hennawy, H. K. (2005): Arachnids in Mediterranean areas of Egypt. *Serket* 9 (3): 73 – 84.
- El-Hennawy, H. K. (2006): A list of Egyptian spiders *Serket*. 10 (2) 65 – 76

- El-Hennawy. H.K (2002) Spiders of Sinai (Egypt), a list of species (Arachnida Araneidae) Serket, 8 (1) 29 - 34
- El-Hennawy. H.K (2003). Arachnids in three Egyptian coastal protected areas on Aqaba gulf (Red sea), Serket, 8(4) 151 - 163
- Evans. T A (1997) Distribution of social crab spiders in eucalypt forest. Australian journal of ecology, 22(1) 107-111
- Kaston, B.J. (1978): How to know the spiders. W.C Brown Co., Dubuque, Iowa, USA, 722 pp.
- Petrunkovitch, A. (1939): Catalogue of American Spiders Vol. I Trans. connect Acad. Sci., 33:133-338
- Sallam, Gihan. M. E. (2002): Studies on true spiders in Egypt. Ph. D. thesis, Fac Agric., Cairo Univ., 144 pp.

تواجد العناكب في محافظة شمال سيناء

جهان محمد السيد سلام

معهد بحوث وقاية النباتات - مركز البحوث الزراعية

اجريت هذه الدراسة في الفترة من اغسطس ٢٠٠٣ حتى ٢٠٠٥ في منطقتين اساسيتين وهما محمية الزرانيق و منطقة الشيخ زويد وذلك لدراسة اهم انواع العناكب التي تتواجد في هذه المناطق و على ثلاث نباتات اساسية و هي الطرفة و الصبار الارضي و الشيح البابوني وذلك عن طريق هز النباتات واستقبال الافراد و طريقة الجمع اليدوي لافراد المتحركة على سطح الارض. ولقد اثبتت الدراسة وجود 23 فصيلة و ١٦ جنس و ١٠ انواع تم تعريفها حتى مستوى النوع. حيث وجد ان اكثر الفصائل انتشارا هي Theridiidae, Gnaphosidae, Tetragnathidae, Araneidae, Miturgidae وكان اقلها انتشارا Dictynidae, Pholcidae, Linyphiidae, Licoranidae, Oxyopidae, Agelenidae, Salticidae, Philodromidae, Scytodidae, Thomisidae, Mimetidae, Filistatidae, Hersiliidae, Eresidae, Sparassidae, Zodariidae, Lycosidae. واتضح من الدراسة ان الانواع *Thomisus spinifer* المنتمي لفصيلة Thomisidae, و *Argiope lobata* المنتمي لفصيلة Araneidae كانت اكثر الانواع انتشارا خلال فترة الدراسة ووجد ان عاملي العام و الموسم كان لهما تأثير معنوي على تواجد العناكب.