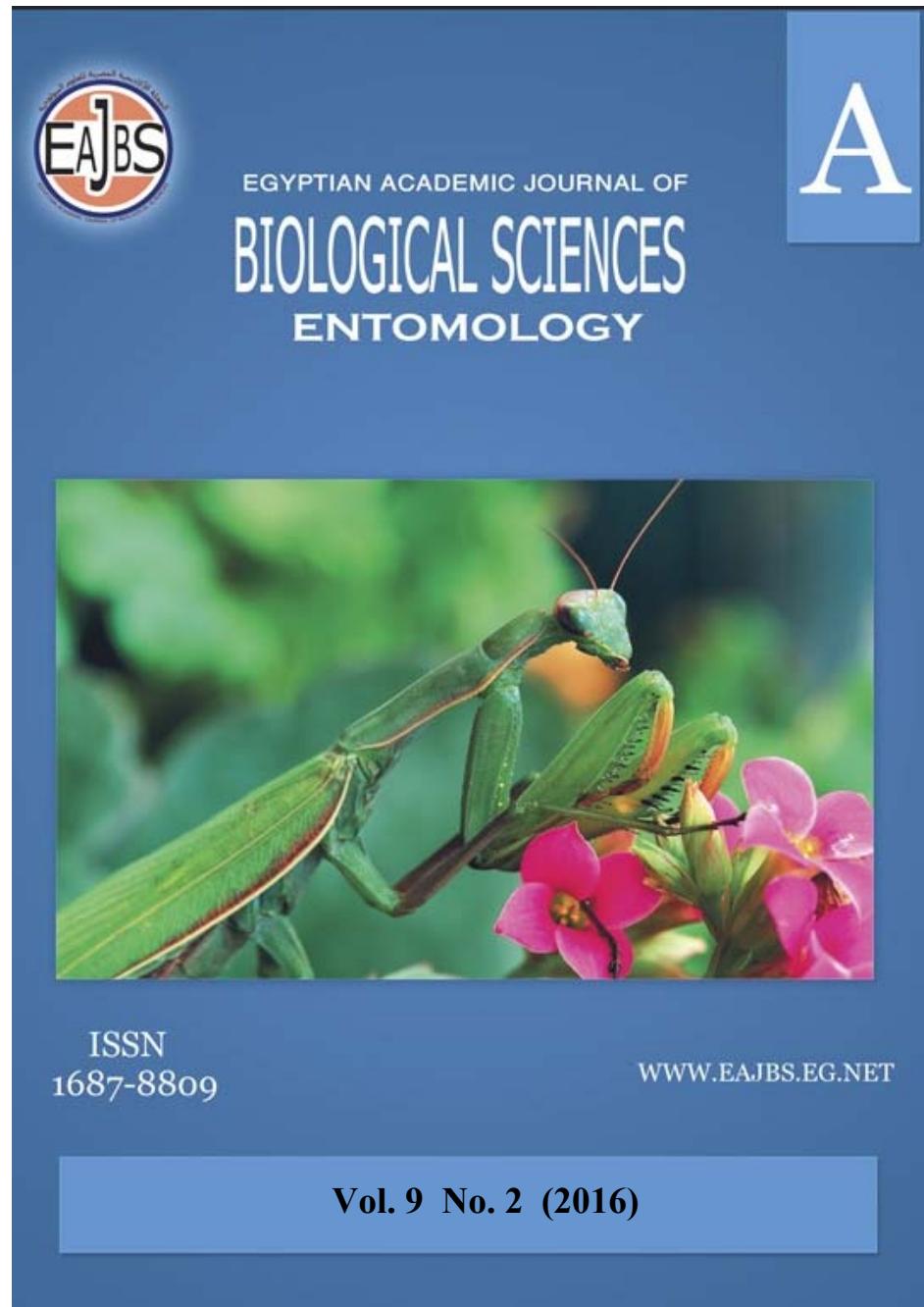


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Incidence and Population Dynamic of the Spiders on Date Palm Trees in Qaluobia and Beni –suif Governorates

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ABSTRACT

Spiders are among the most abundant predators recorded on date palm trees in Beni-Suif and Qaluobia Governorates. They are voracious predators, and combined with their high abundance, which play an important role in the reduction of different pests' populations. Field trials were conducted in Qaluobia and Beni-Suif Governorates during the period of October 2013 to October 2014 to show the incidence of different spiders. Obtained data recorded that the collected predaceous spiders were identified into 14 families in Beni-Suif included 11 families recorded in Qaluobia as follows; Theridiidae, Philodromidae, Thomisidae, Lycosidae, Linyphiidae, Gnaphosidae, Dictynidae, Miturgidae, Araneidae, Tetragnathidae, Agelemidae, Scytodidae, Filistatidae and Uloboridae. Also a ratio of these count, indicated that an average of 25 % of spider families and species were absent from palm in Beni-Suif Governorate. On the other hand, under these families recorded 19 species of predators. The most numerous spiders species collected from date palm, *Phoenix dactylifera* at Beni-Suif Governorate were 227 individuals of *Steatoda pykuliana*, while the high number of predators species collected from Qaluobia Governorate were 223 individuals of *Filistata hibernalis*.

INTRODUCTION

The true spiders are one of the most important biological control agents against different pests infesting different crops. El-Erksousy *et al.*, 2006; Huseynov, 2007; Turnbull, 1973; Johnson *et al.*, 2000; Whitehouse and Lawrence 2001 recorded the true spider's agent against certain agricultural pests. All adult spiders are predaceous, which play an important role in the reduction of pest pulsations (Greenstone 1999 and Riechert 1999). However, individual spider species lack many of the characteristics suggested as necessary for a successful biological-control agents (Murdoch *et al.*, 1985). They feed on a variety of prey and do not exhibit density-dependent tracking of prey populations. Nonetheless, spider assemblages as a whole impose high levels of mortality on pest populations in various crops (Riechert & Bishop 1990; Caserte and Rypstra 1995; Riechert 1999). The significance of spider assemblages for biological control of pests in Australia or Egypt or / and different location an agro-ecosystems is largely unknown, and spiders have been the subject of very few investigations (Bishop 1978, 1980; Bishop and Blood 1981). The present study aims to survey the spiders associated with different pests infesting date palm trees in Beni-Suif and Qaluobia Governorates during the period of October 2013 to October 2014.

MATERIALS AND METHODS

Survey of spiders on date palm trees:

Survey and abundance of spiders were conducted throughout a year of investigation in two Egyptian Governorates: Lower Egypt: Qaluobia and Upper Egypt: Beni-Suif during the period of (Oct. 2013 – Oct. 2014). Samples of 15 trees divided into three groups each of five trees of date palm, with three different age (2, 4 and 6 years).

Spider collection:

Predaceous spider species were collected from two locations of cultivated date palm, and found on foliage, on different the trees ages and associated with fallen fruits were collected by hand picking or/ and sorting the spiders and by using small sieve and then brought to the laboratory for identification. Samples were counted weekly during the surveying period. The surveyed spiders were kept in glass vials containing 75% ethyl alcohol and droplets of glycerin. Identification of the collected spiders was available for adults only. Identification of adults' females is depending on shape of eyes and epigynal plate of female or on the palp in case of male, Sallam (2002).

RESULTS AND DISCUSSION

True spiders in Qaluobia and Beni-Suif region:

True spiders were found in palm fields in the two locations of study and throughout (October 2013 and 2014) seasons. Survey and identification of Common true spider predators families found in two locations: Spiders are the best predators found on bark, fallen fruits and soil. They are relatives of insects that follow the same taxonomic hierarchy as described previously. They belong to the class Arachnida and the Order Araneae. Data represented in Table (1) recorded that number of families collected from date palm, in two Governorates Beni-Suif and Qaluobia. Resulted recorded that 14 families collected from (Bark and fallen leaves) of date palm at Beni-Suif, while, in Qaluobia 11 families were recorded. The collected predaceous family spiders were identified as follows: Araneidae, and Uloboridae (orb-weavers) Filistadae (sow bug - eating spiders), Clubionidae, (Dictynidae, Linyphiidae, or Theridiidae (mostly space web weavers; theridiids also known as comb footed spiders), Salticidae (jumping spiders), and Oecobidae (Lynx spiders), Lycosidae (wolf spiders), Linyphiidae or Gnaphosidae (sac and ground spiders), Thomisidae and Philodromidae (crab spiders) and Miturgidae (pirate spiders). Represented data in Table (1) found that the spider families and species' are nocturnal collected comb footed spiders (the total number family estimated by (227 individuals in family Theridiidae) and crab spider (36 and 51 individuals in families Thomisidae and Philodromidae, respectively, and 72 individuals from Filistadae family) that is the most numerous spiders collected from date palm at Beni-Suif. On contrast, 223 individuals / Filistadae family, 76 individuals in family Theridiidae) (24 and 51 individuals in families Thomisidae and Philodromidae, respectively, were recorded at Qaluobia Governorate. Data in the mentioned Table (1) clearly that the population of true spider families was generally different in both location throughout 2013 and 2014 seasons. Table (1) clear that the overall total of true spider (in families) in two location Beni-Suif and Qaluobia throughout 2013 and 2014 seasons were 592 and 497 individual on date palm, respectively, the high percentage of totally collected true spider family (individuals adults or immature stages) were 38.4 family

Theridiidae and 37.7 % Filistadae family, while the lowest families were 1.3 and 0.6 % Linyphiidae and Uloboridae families in Beni-Suif, on the other hand these families absent in Qaluobia.

Table 1: List of collected spider Families associated with date palm pests at Beni-Suif and Qaluobia Governorate during the period of Oct. 2013 –Oct. 2014.

Survey spider families /palm	No. of families at Beni-Suif (June-Dec.)	Observation of spiders number	No. of families at Qaluobia (Jun – Dec.)	Observation of No. of spiders
Theridiidae	227 (38.4%)	April, Sep., Oct. and November.	76 12.8 %	April, Mar. and Aug.
Philodromidae	51 8.6%	April and Sept.	51 8.6 %	April
Thomisidae	36 6.0%	In all months, (4-35)	24 6.0 %	April & November
Uloboridae	4 0.6%	April , August, Sep. and Dec.(1)	0 0.0 %	(absent) all season
Salticidae	43 7.4%	In all months the num. (3-6)	60 10.1 %	November and December
Lycosidae	22 3.7%	In all months, (2-4)	14 2.3 %	In all months the num. (1-3)
Linyphiidae	8 1.3%	In all months, (1-2)	- 0.0 %	(absent) all season
Gnaphosidae	13 2.1%	April and Nov.	2 0.3 %	Mar. Jul.
Dictynidae	19 3.2%	In all months, ,(1-3)	12 2.0 %	In all months, . (1-2)
Miturgidae	34 5.7%	In all months the num. (1-5)	13 2.1 %	In all months, . (1-3)
Araneidae:	11 1.8%	April , Aug., Sep. and Nov. (3-4)	5 0.8 %	November & October
Agelemidae	17 2.8%	In all months , (1-4)	1 0.01 %	April
Scytodidae	35 5.9%	In all months,, (1-5)	17 2.8 %	In all months , (1-5)
Filstadae	72 12.6%	In all months (2-16)	223 37.7 %	In all months, (4-35)

The true spider's species collected from date palm.

Data recorded in Table (2) show that the collected spiders were identified 19 predators as follows. As show in Table (2), all species belonging to 14 families, the most abundant species was noticed for associated with families (Theridiidae, Filistadae, Philodromidae, Thomisidae, Salticidae and Scytodidae, associated with fallen leaves and trees bark in two locations. Total of 489 individual spiders were collected from Qaluobia and 572 were collected from Beni-Suif, Table (2). The study also recorded the high mean average numbers of the predators *Filistata hibernalis* found on palm in Kaha estimated by 223 individual collected during 2013 and 2014 seasons. On the other hand, in Beni-Suif, the total number species estimated by (204 individuals of *Steatoda pykuliamae* in family Theridiidae) during 2013 and 2014 seasons. From these data can be concluded that The total number of spider species and families were collected from Beni- Suif Governorate is higher than were collected from Qaluobia Governorate, in the previous studies associated with trees bark but some families as Araneidae, Uloboridae , Dictynidae, Linyphiidae, and Oecobidae and Lycosidae associated with fallen leaves. Evans (1985) collected 33 spider species from 12 families in soybean, while, Bishop (1978, 1980) collected 25 species from ten families in cotton. A review of Australian literature recorded in cotton farming systems lists 41 species from 13 families (Johnson *et al.*, 2000). Notably the dominant Linyphiidae has not been recorded in previous studies. The Amaurobiidae was the only family recorded in the review (Johnson *et al.*, 2000).

Table 2: Survey and population dynamic of true spider Families associated with date palm pests at Beni-Suif and Qaluobia Governorates during Oct.2013-Oct. 2014.

Family	Spider species	No. in (B)	Total no. in (B)	% of spider in (B)	Total in (B)	No. in (Q)	Total no. in (B)	% in (Q)	Total in (Q)
:Lycosidae	<i>Pardosa</i> sp, <i>Lycosa helluo</i> Walckemae	22	7 15	3.84	572	14	12 2	2.86	489
Linyphidae	<i>Drapetisca alteranda</i> Chaberlim	8	8	1.39		1	1	0.20	
Ganaphidae	<i>Drossodes neglectus</i> Keyserling	13	13	2.27		2	2	0.40	
Dictynidae	<i>Dictyna</i> sp	19	19	3.32		12	12	2.45	
Miturgidae	<i>Chirocomthium inclusum</i> Henz	34	34	5.94		13	13	2.65	
Araneidae	<i>Neoscoma</i> sp	11	11	1.92		5	5	1.01	
Agelemidae	<i>Tegemaria</i> sp	17	17	2.97		1	1	0.20	
Scytodidae	<i>Scytodes perfecta</i> Banks	35	35	6.11		17	17	3.47	
Filistatidae	<i>Filistata hibernalis</i> Hentz	72	72	12.58		223	223	45.88	
Theridiidae	<i>Steatoda ykuliana</i> (Walckamae) <i>Theridiam egyptian</i> <i>Emoplagmatha ovata</i> (Clerck)	227	204 6 12 5	39.68		76	66 6 3 1	15.54	
Philodromidae	<i>Thamnus albini</i> Audouim	51	51	10.42		51	51	10.42	

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RABIC SUMMARY

حصر وتعداد العناكب على نخيل البلح في محافظة القليوبية وبني سويف

عابدين محمود خليل - حسين عبد الحميد عزوز - آمال إبراهيم أبو زيد - حسنية عبد الفتاح عفيفي
معهد بحوث وقاية النباتات الجيزة - الدقى - الجيزة

تمت دراسة حصر تعداد العناكب على نخيل البلح (الحياني) في محافظة القليوبية وبني سويف ووجد أن هناك ١٩ نوعاً من العناكب تتبع ١١ عائلة ولوحظ أن النوع *Pykaliana steatoda* التابع لعائلة Theridiidae هو أكثر الأنواع شيوعاً حيث تواجد بـ ٢٢٧ فرد بنسبة ٣٨.٤% من مجموع الأفراد في المحافظتين وكانت العائلة Filistaidae الأكثر تواجداً في محافظة بنى سويف حيث ضمت ٢٢٣ فرداً بنسبة ٣٧.٧% من مجموع الأعداد في المحافظتين