

INCEDINCE OF ECTOPARASITIC MITES ASSOCIATED WITH SOME WILD BIRD NESTS AT ELGHARBIA GOVERNORATE

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ABSTRACT: *Random samples from some wild birds and its nests were collected from two districts (Tanta and Zifta) at Elgharbia governorate during two successive years (2013 & 2014) to identify the mite species associated with it. The examined birds and its nests were : Cattle egret, Common bulbul, Hooded crow , Hoopoe, House sparrow, Little egret, Palm dove and Swallow. Mites belonging to Parasitiformes and Acariformes of four suborders; Gamasida, Ixodida, Actinedida and Acaridida were extracted from collected samples and identified. The obtained results revealed that the suborder Gamasida was represented by 15 species belonging to 11 genera and 6 families. The suborder Ixodida was represented by 1 species, belonging to 1 genera and 1 family. The suborder Acaridida was represented by 8 species, belonging to 6 genera and 5 families. The suborder Actinedida was represented by 8 species belonging to 8 genera and 8 families. The highest occurrence of mite species in this study were recorded with the sub order Gamasida, followed by the sub order Acaridida presented in moderate mite species; while the lowest occurred mite species were presented in the suborder Ixodida as Argas arboreus K.H.Ko. As for bird nests , the House sparrow and Cattle egret nests were the highest infected with mite species followed by Palm dove and Hooded crow with moderate numbers of mite species; while Common bulbul, Hoopoe, little egret and Swallow nests were associated with the lowest mite species.*

Key Words: Parasitic - Acariformes - Parasitiformes - Wild Birds - Nests.

INTRODUCTION

In recent years, the subject of the mite birds associations have attracted the alternation of several authors. There has been an increasing awareness of the role of mites as vectors of diseases and producers of dermatitis in man and farm animals.

These mites associated with wild birds may be ectoparasitic, semi parasitic, predacious, phoretic, exudate feeders and fungi-vorus mites.

Parasitic mites cause considerable economical losses to the birds, damage to the feathers, and decrease in productivity transmission of diseases.

Therefore, several studies were undertaken throughout different parts of the world by Fain and Philips (1979), Mohamed

and Rakha (1980), Koymud Zhicva (1981) and Oconnor (1981), Gawd and Atyeo (1982 &1985) and Rosen *et al.* (1982).

The present study aimed to study the occurrence of mite species associated with wild birds and its nests along two successive years at two districts (Tanta, Zifta) of Gharbia governorate in Egypt .

MATERIALS AND METHODS

For studying the incidence of some mite species associated with some wild bird nests during the two successive years 2013-2014, samples were collected from nests of some wild birds (House sparrow, Swallow, Common bulbul, Cattle egret, little egret, Palm dove, Hooded crow) living at two districts (Tanta and Zifta) of Gharbia governorate.

The samples of nests were picked and singly kept in tightly closed polyethylene bags. A label including all data of collection were stuck on each bag, and then transferred to laboratory. Each materials was extracted by modified Tullgren funnels, and the extracted mites were received in Petri-dishes.

Collected mites were cleared in Nesbit's solution, then mounted on slides using Hoyer's medium and identified according to Lindquist and Evans (1965) Hughes (1976) Zaher (1978) Summer and Price (1979) Volgin (1998).

RESULTS AND DISCUSSION
Incidence of the mites associated with wild bird nests:

The current study was carried out during the two successive years (2012-2013&2013-2014) at two districts (Tanta and Zifta), to recognize the mites associated with wild birds.

Different mite species were found in the most samples of bird nests. Data revealed the presence of 35 mite species belonging to 27 genera under 19 families, these are belonging to 2 order and 3 sub order (Table 1).

Table (1): Abundance of ectoparasitic mites associated with some wild bird nests at Elgharbia Governorate

Order : Parasitiformes
Sub order: Gamasida

Mite species	Hosts	Abundance	Localities
1- Family:- Ascidae			
<i>Blattisocius tarsalis</i> (Berlese)	House sparrow	**	Tanta
<i>Blattisocius keegani</i> Fox	Cattle egret	**	Tanta
<i>Proctoluelaaps pygmaeus</i> Muller	House sparrow	**	Tanta
<i>Proctolelaps minutus</i> Nasr	Palm dove	**	Tanta
2- Family:- Dermanyssidae			
<i>Dermanyssus galinae</i> (DeGeer)	Cattle egret	*	Tanta
<i>Dermanyssus chellidonis oudemns</i>	House sparrow	*	Tanta
3- Family:- Macronyssidae			
<i>Steatonyssus peribly kolentai</i>	House sparrow	*	Tanta
<i>Macronyssus japonica</i> Radovesky	Hooded crow	*	Zifta
<i>Ornithonyssus bacati</i> (Hirst)	Cattle egret	*	Tanta
<i>Pellonyssus</i> sp.	House sparrow, Hoopoe	* *	Tanta
4- Family- Laelapidae			
<i>Androlaelaps cassolis</i> (Berlese)	Cattle egret	**	Tanta
<i>Androlaelaps kifli</i> (Ibrahim)	Palm dove		Tanta
<i>Hypoaspis baloghi</i> Shereef& Afifi	Common bulbul	*	Zifta
<i>Hypoaspis orientalis</i> El-Badry& Nasr	House sparrow	*	Tanta
5- Family:- Uropodidae			
<i>Uroobovella marginata</i> Berlese	Hooded crow	*	Zifta
<i>Trichouropoda potaviana</i> (Canestrini)	Cattle egret Palm dove	*	Tanta

Incedince of ectoparasitic mites associated with some wild bird nests

Order : Parasitiformes

Sub order: Ixodida

Mite species	Hosts	Abundance	Localities
1- Family:- Argasidae			
<i>Argas arboreus</i> K.H.Ko.	Cattle egret, Hooded crow	* *	Tanta

Order: Acariformes

Sub order: Acaridida

Mite species	Hosts	Abundance	Localities
1- Family: Acaridae			
<i>Tyrophagus similisvolgin</i>	Cattle egret	**	Tanta
	Little egret	**	
<i>Tyrophagus putrescenti</i> (Shank)	Hoope	***	Tanta
	House sparrow	***	
<i>Acarus siro</i>	Palm dove	*	Tanta
<i>Acarus gracillis</i> (De Gree)	House sparrow	*	Zifta
2- Family: Chortoglyphidae			
<i>Suidasio nesbitte</i> Huges	Palm dove	*	Tanta
	House sparrow	*	
	Swallow	*	
3- Family: Glycyphagidae			
<i>Lepidoglyphus destructor</i> (Shrank)	Swallow	*	Tanta
	Hooded crow	*	Zifta
4- Family:- Dermoglyphidae			
<i>Dermoglyphus columbae</i>	Hooded crow	*	Tanta
5- Family:- Pyroglyphidae			
<i>Dermatoglyphus farrinae</i>	Hooded crow	*	Tanta.

Order: Acariformes
Sub order: Actinedida

1- Family:- Pyemotidae			
<i>Pyemotes herfsi</i> Oudemans	House sparrow	**	Tanta
	Common bulbul	**	Zifta
2- Family:- Scutacaridae			
<i>Scutacarus eumansi</i> Soliman & kandeel	Cattle egret	*	Tanta
3- Family:- Pygmophoridae			
<i>Pygmophorus</i> sp.	Palm dove	*	Tanta,Zifta
4- Family:- Acarophinacidae			
<i>Acarophinax</i> sp.	House sparrow	*	Tanta
5- Family:- Cheyletidae			
<i>Cheyletus malaccensis</i> Oudemans	Palm dove	**	Tanta
6- Family:- Tarsonemidae			
<i>Tarsonemus</i> sp.	Cattle egret	*	Tanta
7- Family:- Stigmaeidae			
<i>Mediolata</i> sp.	House sparrow	*	Tanta
8- Family:- Bdellidae			
<i>Pulus niloticus</i> (Zaher& El-Beshlawy)	Little egret	*	Tanta

* Few : (3-5) ** Moderate : (6-9) *** High : < 9 individuals

1- Order Parasitiformes:

This order includes two sub orders, . The sub order Gamasida was occurred by five families: Ascidae, Dermanyssidae, Macronyssidae, Laelapidae and Uropodidae, and sub orders Ixodida represented by one family Ixodidae.

1-1 Suborder: Gamasida**Family Ascidae:**

This family was represented by 4 species, *Blattiscocius tarslis* which found in moderate numbers in nests of House sparrow from Tanta; *B. keegani* which found in moderate numbers in nests of Cattle egret from Tanta; *Proctolaelaps pygmaeus* which found in moderate numbers in nests of House sparrow from Tanta; and *Proctolaelaps*

minutus which found in moderate numbers in nests of Palm dove from Tanta.

Family Dermanyssidae:

This family was represented by two species; *Dermanyssus gallinae* and *Dermanyssus chelidonis* which collected by few number from Tanta in nests of Cattle egret and House sparrow, respectively.

Family Macronyssidae :

This family was represented by four species; *Steatonyssus priblyphorus* which found by few number in nests of House sparrow from Tanta; *Macronyssus jabonica* which found by few number in nests of Hooded crow from Zifta; *Ornithonyssus bacoti* which found by few numbers in nests Cattle egret from

Incedince of ectoparasitic mites associated with some wild bird nests

Tanta ; and *Pellonyssus* sp. which found as few numbers in nests of House sparrow and Hoopoe from Tanta .

Family Laelapidae :

This family was represented by four species and in moderate numbers : *Androlaelaps casalis* which isolated from nests of Cattle egret in Tanta; *Androlaelaps kifli* which isolated by few numbers from nests of Palm dove in Tanta *Hypoaspis baloghi* which isolated from nests of Common bulbul in Zifta, and *Hypoaspis orientalis* which isolated by few numbers from nests of House sparrow in Tanta.

Family Uropodidae :

This family was represented by two species; *Uroopovella marginata* which extracted by a few numbers from nests of Hooded crow in few numbers in Zifta, and *Trichouropoda potaviana* which extracted by few numbers from nests of Cattle egret and Palm dove in Tanta.

1- 2 Sub order Ixodida :

Family Argasidae :

This family was represented by one species, *Argas arboreus* K.H.Ko which extracted from nests of Cattle egret and Hooded crow in few numbers in Tanta.

2- Order Acariformes:

2-1 Sub order Acaridada :

Family Acaridae:

This family include in this study on two species in highly numbers; *Tyrophagus similis* which isolated by moderate numbers from nests of Cattle egret and Little egret in Tanta; *Tyrophagus putrescentiae* by high numbers which isolated from nests of Hoopoe and House sparrow in Tanta. Also; *Acarus siro* , *Acarus grasillis* which isolated from nests of Palm dove , Common bulbul and House sparrow in Tanta and Zifta.

Family Chortoglyphidae:

This family was represented by one species; *Suidasia nesbitte* which collected from nests

of Palm dove, House sparrow and Swallow in Tanta in few numbers.

Family Glycyphagidae :

This family was represented by one species; *Lepodoglyphus destructor* which collected from nests of and Swallow in Tanta and Hooded crow in Zifta in few numbers.

Family Dermoglyphidae :

This family was represented by one species; *Dermoglyphus columbae* which collected by few numbers from nests of Hooded crow in Tanta.

Family Pyroglyphidae :

This family was represented by one species; *Dermatoglyphus farrinae* which collected by few numbers from nests of Hooded crow in Tanta.

2-2 Sub order Actinedida :

Family Pyemotidae :

This family was represented by one species; *Pyemotes herfsi* by moderate numbers from nests of House sparrow and Common bulbul in Tanta and Zifta.

Family Scutacaridae :

This family was represented by one species; *Scutacarus evansi* which collected by few numbers from nests of Cattle egret in Tanta.

Family Pygmophoridae :

This family was represented by one species; *Pygmophorus* sp. which collected by few numbers from nests of Palm dove in Tanta and Zifta.

Family Acarophinacidae :

This family was represented by one species; *Acarophinax* sp. which collected by few numbers from nests of House sparrow in Tanta.

Family Cheyletidae :

This family was represented by one species; *Cheyletus malaccensis* which extracted by

moderate numbers from nests of Palm dove in Tanta.

Family Tarsonemidae :

This family includes one species; *Tarsonemus* sp. which extracted by moderate numbers from nests of Cattle egret in Tanta.

Family Stigmaeidae :

This family was represented by one species; *Mediolata* sp. which extracted by few numbers from nests of House sparrow in Tanta.

Family Bdellidae :

This family was represented by one species; *Pulus niloticus* which extracted by few numbers from nests of little egret in Tanta.

The obtained results are in agreement with those conducted by Baker *et al.* (1976) who surveyed twenty one species of mites belonging to eight families in nests of birds from New York. Also Ivanov (1980) collected 6171 mites belonging to 302 species from birds, including some species associated with man. In Egypt also, Mohamed and Rakha (1980) surveyed ten species belonging to the suborder Prostigmata and Astigmata inhabiting house sparrow nests in Giza region.

Results, also in harmony with that obtained by Koyumdzhieva (1981) who listed 22 species of Gamasid mites collected from birds and nests, and Oconnor (1981) who collected 1866 mites of 31 species from Norway bird nests.

On the other hand, Gawd and Atyeo (1982) recorded 14 mites species belonging to three genera from different wild bird nests. Rosen *et al.* (1982) examined 609 wild birds, (39.4%) of these birds were infested with parasitic mites. These mites belonged to 16 species of Sarcoptiformes and 6 species of mesostigmatic blood sucking mites.

Furthermore, Abd Alla (1993) recorded 41 species belonging to four suborders: Acaridida, Actinedida, Gamasida and Ixodida.

In addition , the obtained data are in agreement with Soliman (1999) who reported that the mites; *Blattisocius* sp., *Stenoglyphus* sp., *Androlaelaps* sp., *Hypoaspis* sp., and *Cheyletus malaccensis* were recorded in nests, nestling and adults of palm dove, while *Analges* sp. and *Cunaxa* sp. were recorded in their nests and *Dermanyssus galinae*, *Ornithonyssus* sp. and *Dermatophagodes faerrinae* were existed on both nestling and adults. El-Danasory (2002) classified the ectoparasitic mites associated with Cattle egret as Order Acariformes (*Acarus* sp., *Caloglyphus* sp., *Neorivoltasia metwallyi*, *Lardoglyphus* sp., and *Strelkoviacarus quadratus*) and Spinibdella bifurcate for Acridida and Actinedida respectively; while Order Parasitiformes (*Nenteria* sp., *Androlaelaps* sp., *Kleemanmia plumosus*, *Ornithonyssus* sp., and *Dermanyssus* sp.), and *Argas reflexus* and *Argas persicus*) for Gamasida and Ixodida , respectively.

Recently in Egypt, Mahmoud *et al.* (2012) recorded fifteen mite species belonging to fourteen genera, eleven families and three orders at Palm dove.

Masan *et al.* (2014) reviewed the mites associated with birds in Slovakia as three mite genera : *Dermanyssus Dugès* (Dermanyssidae), *Ornithonyssus sambon* and *Pellonyssus* Clark & Yunker (Macronyssidae), and recognized nine reliably documented species, where *Pellonyssus* was represented by one species, *Dermanyssus* by five species, and *Ornithonyssus* by three species.

Mite species associated with nests of different wild bird orders:

Data in Table (2) show the classification of the collected wild bird species , in addition to the ectoparasitic mite species which associated with it and their nests.

Incedince of ectoparasitic mites associated with some wild bird nests

Table (2): Ectoparasitic mite species associated with nests of different wild bird orders at Elgharbia governorate

Common name	Scientific name	Mite species
Orders: Ciconiformes		
Family: Ardidae		
Cattle egret	<i>Ardeola ibis ibis</i>	<i>Androlaelaps cassalis</i>
		<i>Blattisocius keegani</i>
		<i>Dermanyssus galinae</i>
		<i>Argas arboreus</i>
		<i>Ornithonyssus bacoti</i>
		<i>Proctplaelaps pygmaeus</i>
		<i>Scutacarus evansi</i>
		<i>Tarsonymus sp.</i>
Little egret	<i>Egretta garzetta</i>	<i>Trichouropoda potavina</i>
		<i>Dermanyssus galinae</i>
		<i>Pulus niloticus</i>
		<i>Tyrophagous tropicus</i>
Orders : Colombiformes		
Family: Columbidae		
Palm dove	<i>Streptopelia senegalensis</i>	<i>Acarus siro</i>
		<i>Androlaelaps kifli</i>
		<i>Cheyletus malaccensis</i>
		<i>Proctplaelaps minutus</i>
		<i>Pygmophorus sp.</i>
		<i>Suidasia nesbitti</i>
		<i>Trichouropoda potaviana</i>
Orders : Passeriformes		
Family : Corvidae		
Hooded crow	<i>Corvus corone cornix</i>	<i>Dermatophagoides farrinae</i>
		<i>Dermoglyphus columbae</i>
		<i>Argas arboreus</i>
		<i>Lepidoglyphus destructor</i>
		<i>Macronyssus jabolica</i>
		<i>Steanonyssus periblyphorus</i>
		<i>Urobovella marginata</i>

Table (2): Cont.

Common name	Scientific name	Mite species
Orders : Passeriformes		
Family : Passeridae		
House sparrow	<i>Passer domesticus niloticus</i>	<i>Acarophinax</i> sp.
		<i>Acarus gracilliis</i>
		<i>Blattisocius tarsais</i>
		<i>Dermanyssus chelidomis</i>
		<i>Hpoasps orientalis</i>
		<i>Mediolata</i> sp.
		<i>Pellonyssus</i> sp.
		<i>Proctplaelaps pygmaeus</i>
		<i>Pyemotes heresy</i>
		<i>Steanonyssus periblyphorus</i>
		<i>Suidasia nesbitti</i>
		<i>Tyrophagous putrescenti</i>
Family : Hirundidae		
Swallow	<i>Hirundo rustica savignii</i>	<i>Androlaelaps kifli</i>
		<i>Lepidoglyphus destructor</i>
Family : Pycnonotidae		
Common bulbul	<i>Pycnonotus barbatus</i>	<i>Acarus siro</i>
		<i>Hypoaspis oblonga</i>
		<i>Pyemotes herfisi</i>
Family : Upupidae		
Hoopoe	<i>Upupa epops</i>	<i>Pellonyssus</i> sp.
		<i>Tyrophagous tropicus</i>

The obtained results revealed the presence of the Cattle egret (Family: Ardeidae , *Ardeola ibis ibis*) which was infected by 9 mite species: *Androlaelaps cassalis*, *Blattisocius keegani*, *Dermanyssus galinae*, *Argas arboreus*, *Ornithonyssus*

bacoti, *Proctplaelaps pygmaeus*, *Scutacarus evansi*, and *Tarsonymus* sp. As for the Little egret (*Egretta garzetta*) results indicated the presence of 3 mite species; *D.galinae*, *T.tropicus* and *P.niloticus*.

Incedince of ectoparasitic mites associated with some wild bird nests

Regarding to Palm dove (Family: Columbidae , *Streptopelia senegalensis*) results in Table (2) indicated the presence of 7 mite species : *P.minutus*, *T.potaviana*, *A.kifli*, *A.siro*, *S.nesbitti*, *Pygmophorus* sp.and *C.malaccensis*.

Hooded crow (*Corvus coroe cornix*) Family: Corvidae was infected by 7 mite species: *M.jabonica*, *S. periblypharus*, *U. marginata*, *L. destructor*, *D. cloubae*, *D. farrinae* and *Argas arboreus* K.H.Ko

House sparrow (*Passer domesticus niloticus*) Family: Passeridae was infected by 12 mite species: *B. tarsalis* , *P. pygmaeus* , *D. chelidonis* , *S. Periblypharus* , *Pellonyssus* sp. *H. orientalis* , *T. putrescentai* , *A. gracillis* , *S. nesbitti* , *P. herfesi* , *Acarophinax* sp. and *Mediolata* sp.

Sawllow (*Hirundo rustica savignii*) Family: Hirunedidae was infected by 2 mite species : *A. kifli*, and *L. destructor*.

Common bulbul (*Pycnonotus barbatus*) Family: Pycnonotidae was infected by 3 mite species : *H. oblonga*, *A. siro* and *P. herfisi*.

Hoopoe (*Upupa epops*) Family: Upupidae was infected by 2 mite species: *T. putrescenti*, and *Pellonyssus* sp.

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الطفيليات الخارجية الاكاروسية المرتبطة بأعشاش بعض أنواع الطيور البرية في محافظة الغربية

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الملخص العربى

جمعت عينات عشوائية من الطيور البرية وأعشاشها فى مركزى طنطا وزفتى بمحافظة الغربية خلال عامين متتاليين (٢٠١٣ ، ٢٠١٤) لتسجيل أنواع الأكاروسات المرتبطة بهذه الطيور. وقد أمكن جمع عينات من الطيور البرية وأعشاشها وكانت هذه الطيور هى (أبوقردان ، البلبل ، البلشون الأبيض ، الغراب ، اليمام المصرى ، الهدهد، عصفور الجنة ، وعصفور النيل الدورى) .

تم فصل الاكاروسات المرتبطة بالطيور واعشاشها فى المعمل بواسطة اقماح بيليزى وتم تصنيف الانواع المتحصل عليها باستخدام الميكروسكوب الضوئى والمفاتيح التقسيمية العالمية.

تم تسجيل ٣٣ نوع من أنواع الأكاروسات تنتمى إلى ٢٦ جنس تنتمى إلى ١٩ عائلة تنتمى إلى ٤ تحت رتب تنتمى إلى رتبتين من رتب الأكاروس .

اشتملت رتبة Parasitiformes على تحت الرتب الآتية:

١- تحت رتبة Gamasida حيث تم تسجيل ١٥ نوع تنتمى إلى ١١ جنس تنتمى إلى ٦ فصائل.

Incedince of ectoparasitic mites associated with some wild bird nests

٢- تحت رتبة Ixodida حيث تم تسجيل نوع واحد هو *Argas arboreus* K.H.KO ينتمي إلى جنس واحد ينتمي إلى فصيلة واحدة والذي تم فصله من أعشاش أبو قردان والغراب في مركز طنطا .

اشتملت رتبة Acariformes على تحت الرتب التالية:

١- تحت رتبة Acaridida حيث تم تسجيل ٨ أنواع تنتمي إلى ٦ أجناس تنتمي إلى ٥ فصائل

٢- تحت رتبة Actinedida والتي تم تسجيل ٨ أنواع تنتمي إلى ١١ أجناس تنتمي إلى ٨ فصائل.

وكانت أكثر هذه الأنواع شيوعاً هي الأنواع التابعة لمجموعة ذات الشعر المتوسط *Gamasida*.

اثبتت نتائج الدراسة ان عصفور النيل الدوري واعشاشه هو اكثر انواع الطيور اصابة بأنواع الاكاروسات المختلفة حيث تم تسجيل ١٢ نوع من انواع الاكاروسات ، يليه طائر ابو قردان وطائر الغراب البلدى واعشاشهما حيث تم تسجيل (٧ ،٩) انواع من الاكاروسات على كل منهما على التوالي ، فى حيت كان طائر البلشون الابيض والهدهد واعشاشهما هما اقل الطيور اصابة حيث تم تسجيل ٣ انواع فى كل من الطائرين.