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INCEDANCE AND DISTRIBUTION OF ECTOPARASITES ON SOME DOMESTIC BIRDS AT SOHAG GOVERNORATE

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Abstract

The present work was carried out during December 2022 to November 2023 at three districts (Sohag, Akhmim and Dar el-Salam) at Sohag governorate to evaluate the ticks and lice associated with domestic birds (chicken and pigeons). Two parasites found on domestic birds. Number of tick and lice species was belonged to two suborder, two family and two species. The highest number of the tick during December, January and November at Sohag. Also, October and November and Dar el-Salam district. The lowest number was recorded during February at Akhmim and January and February at Dar el-Salam. On the other hand, the highest number of lice during May pigeon birds in Dar el-Salam district. Followed by in June at Sohag district. But, the lowest number was recorded in April at Sohag, Akhmim and Dar el-Salam. And July at Dar el-Salam and Akhmim of August on pigeons. Lice were recorded only on pigeon birds at all studied areas. The absence of tick and lice on the bodies of the studied domestic birds in some months of the year, low or high temperatures.

Key words: incidence- Ecto-parasites- ticks- lice-domestic birds- chicken and pigeons.

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INTRODUCTION

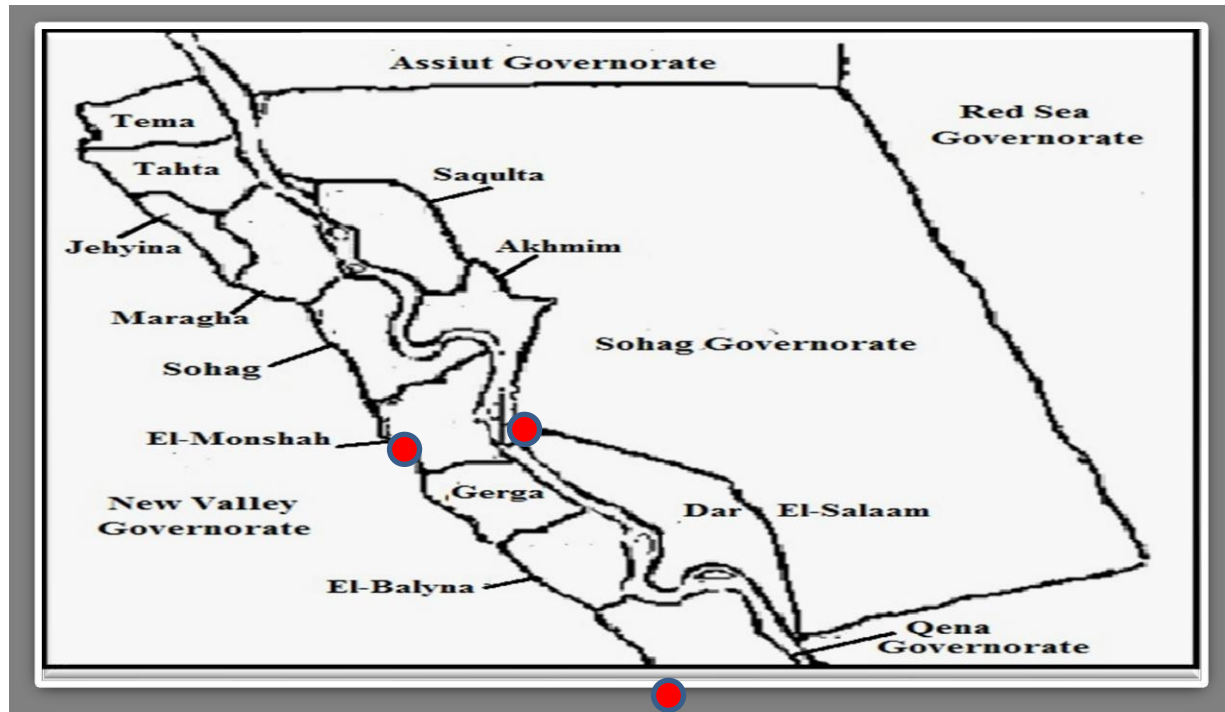
Agricultural ornithology aims at obtaining scientific information on birds in relation to agriculture and using this information for their management. Parasitic mites and insects can be caused of considerable decreasing in birds population Manifested by restlessness damage to the features decrease in productivity transmission of diseases and mortality (Bruun and Baha El Din, 1996). The role of mites as vectors of diseases and producers of dermatitis in man and domestic animals should be taken into consideration mites a large assemblage of primarily terrestrial mites which with few exceptions are no predatory in habit. The birds may be incriminated in transmitting the causative agents of certain serious plant diseases, such as viruses, bacteria and fungi, in addition to other plant and bird species (i.e., insects and mites). It has been reported that ectoparasites affect in the health and productivity of birds, leading them to spend long period of time preening rather than involved in

other essential life activities (Clayton *et al.*, 1999). The rearing of domestic birds, especially chicken has been a common preoccupation of inhabitants of both the rural and peri-urban centers. Who use thier eggs and meat mainly as sources of animal protein and farm manure Frantova (2000). This study was designed in order to provide information about the sites contained domestic birds such as chicken and pigeons and their associated ectoparasites with their bodies at Sohag governorate.

MATERIALS AND METHODS

Study area:

The present work was conducted at Sohag governorate, which occupies the Upper Egypt, about 495 Km. South of Cairo. Sohag governorate boarded by Assiut in the North, in the South by Qena, in the East by Red Sea governorate, and in the West by New Valley governorate. Akhmim district was located in the East of the Nile River. While, Tahta district was located in the West of the Nile River, (Mab1).



A map (1) Showing the study areas (Akhmim, Sohag and Dar El-Salam districts) at Sohag Governorate.

The present work on two domestic birds (chicken and pigeons) was conducted at Sohag governorate, collected from; Sohag, Akhmim and Dar El-Salam districts, a total of samples (240) individual birds of these locations.

Incidence of ticks and lice:

Incidence of tick, *Argus persicus* and lice, *Columbicola columbae* associated with domestic birds including of body (skin, wing and tall feathers). A general studied some districts at sohag governorate (Sohag, Akhmim and DarEl-Salam districts). A total of samples (240) individual birds were collected. These studies carry out during December 2022 to November 2023 at Sohag governorate.

Collecting samples:

Collection of tick, *Argus persicus* and lice, *Columbicola columbae* associated with domestic birds (chicken and pigeons) were collected from poultry farms. The birds were individually examined, using a hand lens to look for any lesions and for large ectoparasites ticks' body areas were examined carefully by a stereomicroscope. Ticks were collected by a fine camelhair brush (no.2-10) on a clean white plastic sheet and the extracted ectoparasites were picked by camel hair brush (no.00) under stereomicroscope. Feathers were collected from each bird and placed individually in modified Brleese's funnels for 24 hours to collect the motile as quill ticks into Petri dishes (Zumpt, 1961). Ticks individuals were picked up from clearing solution and singly mounted in drop of Hoyer's medium and sample data was written on each side. Slide was put in 40 - 45°C oven for 24 hours, then gets out and tightly pointed on cover corner by nail paint and located in slide box horizontally, then kept at room temperature for one week. Slide cover was completely tightened by glue afterward then subjected to identification. Labels containing all necessary information such as locality, color of the live

individuals and date of calculation were stuck a side of the slide. Sudden death solution was used for clearing glass slides and covers directly before using then in mounting specimens to overcome the effect of moisture resulting from weather factors and moisture absorption from them. For lice parasite, the collected it is specimens were fixed in 70% ethanol. After clearing in 10% KOH for 24 hours, they were washed with distilled water for 24 h and passed in alcohol series 70%, 80%, 90% and 99% in four consecutive days.(Mey and Barker, 2014).

The lice specimens were mounted on the slides in Canada balsam by using stereo- zoom microscope, and they were kept for drying in an incubator 50°C for a few weeks.

RESULT AND DISCUSSION

a) Incidence of ectoparasitic argsid tick and lice associated with some domestic bird species at Sohag governorate.

This study was carried out during December 2022 to November 2023 at three districts (Sohag, Akhmim and Dar el-Salam) at Sohag governorate to evaluate the ticks and lice associated with domestic birds (chicken and pigeons).

Data in Table (1) cleared the classification of the collected domestic bird species which include two bird species under two families and two orders.

- 1- Chicken, *Gallus gallus domesticus* belonging to family Phasianidae and order Galliformes.
- 2- Pigeon, *Columba livia domestica* belonging to family Columbidae and order Columbiformes. Nahed- Salah (2021) stated that the classification of the collected domestic bird species which include 5 bird species under 3 families and 3 orders.

Table (1): Classification of some investigated domestic bird species at Sohag Governorate.

Common name	Scientific name	Family	Order
Chicken	<i>Gallus gallus domesticus</i>	Phasianidae	Galliformes
Pigeon	<i>Columba livia domestica</i>	Columbidae	Columbiformes

In the present study it was found during December 2022 to November 2023) in 240 individual birds two groups of ectoparasites (ticks and lice). Other workers Oche *et al.*, (2016) found four groups of ectoparasites (lice, flea, ticks and mites) in 414 birds in Benue State of Nigeria. Nahed- Salah (2021) surveyed that (480) individual birds were infected by 45 mite, 9 ticks and lice species were collected from chickens, ducks, pekeeney ducks, geese, pigeons and turkey-hen from (Al Mahalla Al Kobra, Kutour, Samannoud and Tanta) at Gharbia governorate during two successive years. Different ectoparasites species were collected from two examined domestic bird species. Ticks and lice were parasites as skin, wing and tall feathers. Ectoparasites of domestic birds were recorded during December 2022 to November 2023. In this study, one tick species and one lice species were collected from chicken and pigeons from Sohag, Akhmim and Dar el-Salam districts.

Data in table (2) showed that the presence of parasites found on domestic birds. Number of tick and lice species was belonged to two suborder, two family and two species. Order: Parasitiformes, presented by one species belonging to one family. The family and species was tick, *Argas persicus* this parasite species was belonging the family (Argasidae). Order: Mallbophaga, presented by one species belonging to one family. The family and species was lice, *Columbicola columbae* this parasite species was belonging the family (Philopteridae). The parasitic ticks and lice species were recorded on domestic birds. The obtained data agree with El – Danasoury (2002). El Kammah (2007), Azza – Abdel-Gawad (2008), Mahmoud, *et al.*, (2012). Other workers Lucas *et al.*, (2008) found that, *Argas persicus*, *Menopon gallinae* and *Columbicola columbae* were associated with the Laughing dove, *Streptopelia senegalensis* (L.), in Zaria, Nigeria.

Table (2) Tick, *Argas persicus* and lice, *Columbicola columbae* associated with some domestic bird species at Sohag governorate collecting during 2023 and 2024.

Parasite	Order	Sub order	Family	Species
Ticks	Parasitiformes	Argasina	Argasidae	<i>Argas persicus</i>
Lice	Mallbophaga	Ischnocera	Philopteridae	<i>Columbicola columbae</i>

b) Monthly abundance of ectoparasitic argsid tick and lice associated with some domestic bird species at Sohag governorate.

b.1. On tick, *A. persicus* parasite:

Data in Table (3) revealed that the highest number of the tick, *A. persicus* during December, January and November at Sohag. Also, October and November and Dar el-Salam district. Followed by in February and October at Sohag district, December, January, October and November at Akhmim and December at Dar el-Salam district. The lowest number was recorded during February at Akhmim and January and February at Dar el-Salam. The tick, *A. persicus* was absent during months (March, April, May, June, July, August and September) at all studied areas. The parasite tick, *A. persicus* was recorded only on chicken birds.

b.2. On lice, *C. columbae* parasite:

Data in the same Table showed that the highest number of lice, *C. columbae* during May

pigeon birds in Dar el-Salam district. Followed by in June at Sohag district. Moderate number was during May in Sohag, May and June at Akhmim, June at Dar el-Salam. Also, July at Sohag and Akhmim districts. The lowest number was recorded in April at Sohag, Akhmim and Dar el-Salam. And July at Dar el-Salam and Akhmim of August on pigeons. Lice, *C. columbae* was recorded only on pigeon birds at all studied areas, but it was absent during December, January, February, March, August, September, October and November months of 2022/2023 at Sohag, Akhmim and Dar el-Salam districts. The absence of tick and lice on the bodies of the studied domestic birds in some months of the year, low or high temperatures, may be due to hide in the house birds or nests until a suitable climate is available for their activity. Oche *et al.*, (2016) collected of 294 local chickens and 414 (69.70%) were infested with ectoparasites. Four groups of ectoparasites (lice, flea, ticks and mites). Nahed- Salah (2021)

studied the four districts (Al Mahalla Al Kobra, Kutour, Samannoud and Tanta) at Gharbia

governorate to evaluate the mites, ticks and lice associated with domestic birds.

Table (3): incidence and population density of ticks and lice associated with some domestic bird species at Sohag governorate during 2022/2023.

Month of year	Sohag		Akhmim		Darel-Salam	
	Chicken	Pigeons	Chicken	Pigeons	Chicken	Pigeons
	Ticks	lice	Ticks	lice	Ticks	lice
December	+***	-	***	-	***	-
January	+***	-	***	-	+	-
February	***	-	+	-	+	-
March	-	-	-	-	-	-
April	-	+	-	+	-	+
May	-	***	-	***	-	*****
June	-	*****	-	***	-	***
July	-	***	-	***	-	+
August	-	-	-	+	-	-
September	-	-	-	-	-	-
October	***	-	***	-	*****	-
November	*****	-	***	-	*****	-

(+) = Present. (-) = Absent. (****)=Population Abundance (P.A.) = > 100 P.A. (**) = < 100
P.A. (*) = < 10.



Chicken, *G. gallus domesticus*

Image (1) showed the domestic birds (Chicken and Pigeon).



Pigeon, *C. livia domestica*



Tick, *A. persicus*

Image (2) showed the ectoparasites (Tick and Lice).



Lice, *C. columbae*

CONCLUSION

This study, which focused on the most important Ecto parasites affecting domestic birds such as pigeons and chickens, and the most important Ecto parasites affecting other birds such as ticks and mites, and identifying their activity and spread seasons during the hot or cold months, and identifying their hiding places, aims to benefit from this in preparing a control program for these parasites by following mechanical control methods followed by natural methods without excessive use of pesticides, in order to preserve the environment from pollution or reduce the toxicity of harm to birds or humans

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