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SOME ACARINE ECTOPARASITES ON BATS IN MIDDLE IRAQ

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SUMMARY

A total of 61 bat specimens belonging to three species were collected from four distinct sites in the middle of Iraq. Five species of acarine ectoparasites on bats were found. These were: **Steatonyssus periblepharus** Kolenati. **Spinturnix acuminatus** (C.L.K.). **Cheletonella** sp. **Rhizoglyphus** sp., and **Argas** sp.

Three of the recorded species were new to Iraqi fauna. The abundance and accurence of each parasite was varied from one species to another . **S. periblepharus** and **S. acuminatus** were the most common species found in this study .

INTRODUCTION

Almost every animal group has its own fauna of external acarine parasites. These ectoparasites include species which feed on blood, lymph, digest tissues of their hosts either by puncturing the skin or by invading wounds or surface pores (Radovsky, 1967; Yanker, 1973) .Many show varying degrees of host specificity. Bats (Chiroptera) are one of the animal groups which was reported to be parasitized exclusively by many acarine species **(Rudnick, 1960; Evans et al, 1961; Radovsky, 1967; Phillips, et al** 1969; Herrin and Tipton, 1975) .

The literature concerning the acarine ectoparasites of the bats in Iraq are very scarce (Abul-Hab and Shihab, 1989) ; However, this study conducted to provid some information on acarine parasitizing bats in Iraq .

MATERIALS AND METHODS

Atotal of 61 bats belonging to three species namely : **Pipistrellus kuhlii**(**Kuhl**) , **Taphozous nudiventris** (Cretzschmer) and **Asellia tridens** (Geuffroy) were collected from four sites located in the middle of Iraq near by the Euphrates river (Fig. 1) .

Bat specimens were collected either by hand or with nets in their diurnal roosting places (khans and old neglected houses) .

Each bat was kept seperately in tightly sealed plastic

bag. In the laboratory acarine parasites were recovered through vigorous finecombing and brushing the bat over a white dish. Examination of particular sites on the host was carried out. since parasites often are site-specific. The parasites were counted and transferred to a seperate vial containing 70 percent ethyl alcohol until they were prepared for examination and identification. The gut contents of some mite species was also determined by disecting the gut of freshly engorged specimens .

RESULTS

During the present study four mites and one tick speeies were obtained. these were : **Steatonyssus periblepharus** Kolenati,**Spinturnix acuminatus** (C;L. K) , **Cheletonella** sp., **Rhizoglyphus** sp., and **Argas** sp. All the recorded species were new to Iraqi fauna except **S periblepharus** which was previously reported from **Iraq.** (Abul-hab and Shihab, 1989) .

The result of the suvey is summarized in Table 1. The distribution and abundance of these species among their hosts were as follows : **Steatonyssus periblepharus**

This mite was the most abundant species. a total of 276 specimens of all stages were recovered. All the investigated bats were infested. The mean number of mites were 6,4.2. and 1.4 per bat of **P.kuhli, T. nudiventris,** and **A. tridens** respectively .

Table 1 - Details of the investigated bats with a systimatic list and numbers of the recorded ectoparasites. The number of investigated bats are in paranthesie .

Species of parasites	The numbers of the recorded ectoparasites on each species of bats								
	P.kuhli (31)			T. nudiventirs (15)			A. tridens (15)		
Order: Mesostigmata	No.	Mean	S.D.	No.	Mean	S.D.	No.	Mean	S.D
Fam:Macronyssidae									
Steatonyssus periblepharus	*188	6.0	-2.3	*63	4.2	-2.2	*25	1.7	-0.9
Fam:Spinturnicidae									
Spinturnix acuminatus	*62	2.0	-1.1	*30	2.0	-1.1	0	—	—
Order:Metastigmata									
Fam:Argasidae									
Argas sp.	!15	1.1	-0.3	!20	1.8	-0.9	!8	1.6	-0.9
Order :Prostigmata									
Fam:Cheyletidae									
Cheletonella sp.	*42	2.1	-0.8	*20	2.8	-1.3	0	—	—
Order:Astigmata									
Fam:Acaridae									
Rizoglyphus sp.	0	—	—	0	—	—	1	—	—

* Includes both Adults all the Immature forms .

! larval stage

Spinturnix acuminatus

A total of 92 individuals of this species were taken from **P.kuhli** and **T.nudiventris** at a mean number of 2 mites per bat. The majority of these mites were collected from wing membranes as nymphal and adult stages. The disappearance of larval stage was expected. since **Spinturnix** female have been reported to be viviparous. giving birth to protonymphs (Evans **et al.** 1961).

Cheletonella sp.

Sixty two specimens of **Cheletonella** sp. were collected from 20 bats of **P. kuhli** and 7 of **T.nudiventris.,** with a mean number of 2.1 and 2.8 mites per bat respectively. During the examination of bats **Cheletonella** sp. was observed to feed on the blood of their host this was judged by the presence of intact blood cells in the gut of dissected freshly engorged specimans (Fig. 2).

Argas sp.

This species was found in larval stage only. Their mean numbers were relatively low less than 1.8 per bat. The number of bat infested being 13 of **P.kuhli,** 11 of **T.nudiventris,** and 5 of **A. tridens.** The last species of mite found was **Rhizoglyphus** sp. which represented only by one hypopus on **A.tridens** The occurrence of this species on bats is accidental. and probably transfered to the bats from insects, since it was reported to be phoretic on insects (Manson. 1972; Oconner. 1982).

DISCUSSION

The results clearly indicate that the most common ectoparasites on bats were **S. periblepharus** and **S .acuminatus**. These species were previously reported to be parasitic on bats (Chiroptera) during all stages of their life (Rudnick, 1960; Evans **et al**, 1961. Evans and Till, 1966 Radovsky, 1967). The accurrence and abundance of the recorded ectoparasites varied from one bat species to another. Bats of **P.kuhli** were heavily infested by all the recorded ectoparasites, while **A.tridens** had a relatively light infestation and only **S. periblepharus** was common on these bats. Rudnick (1960) reported that there is a striking correlation between the spinturnicid genera & bat families, and although he reported Spinturnix mites primarily from bats of the families Nutalidae and Vespertilionidae we found **T.nudiventris** (Emballonuridae) was heavily parasitized by **spinturnix** mites as well as **P.kuhli** (Vespertilionidae).

The most interesting feature of this study could be the finding of **Cheletonella** sp.parasitizing two species of bats. **Cheletonella** sp.were reported to be the most highly specialized cheyletid mites, some of them were collected from bat roosts,others reported to be among the mammals -associated cheyletid mites (Volgin, 1969; Whitaker and Wilson. 1974; Reisen. **et al** (1976).

During this study we have observed **Cheletonella** sp.

feeding on the blood of their hosts. This was evident from the presence of intact blood cells in their gut contents as shown in fig 1. Woodroffe (1956) observed members of **Cheletonella** sp feed on the skin of house - martins in England, but this genus is not considered truly parasitic. Therefor, it seems that the feeding habits of **Cheletonella** sp. need further investigation. The final identification of this species together with its biology will be discussed in latter publication .

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Acarine ectoparasites on bats

بعض انـواع القراديـات المتطفلة خارجيـا على الخفـاش في وســط العـــراق

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الملخصـــــن

لقد شملت هذه الدراسة ٦١ خفاش تنتمي الى ثلاثة انواع مختلفة تـــم جمعها من اربعة مناطق مختلفة في وسط العراق ٠

ومن خلال هذه الدراسه تم تسجيل خمسة انواع من القراديات المتطفلة خارجيا على الخفافيش وهذه الانواع هي كما يلي :ـ

Steatonyssus periblepharus Kolenti, Spinturnix acuminatus (CLK) Cheletoneila sp., Rhizoglyphus sp.. and Argas sp.

ثلاثة انواع منها اعتبرت تسجيل جديد للعـراق ٠

ان تواجد هذه الانواع وكثافتها العددية كانا مختلفان من نوع لاخر من الخفافيش والانواع الاكثر شيوعا من هذه المتطفلات كان **S periblepharus and S acuminatus.**

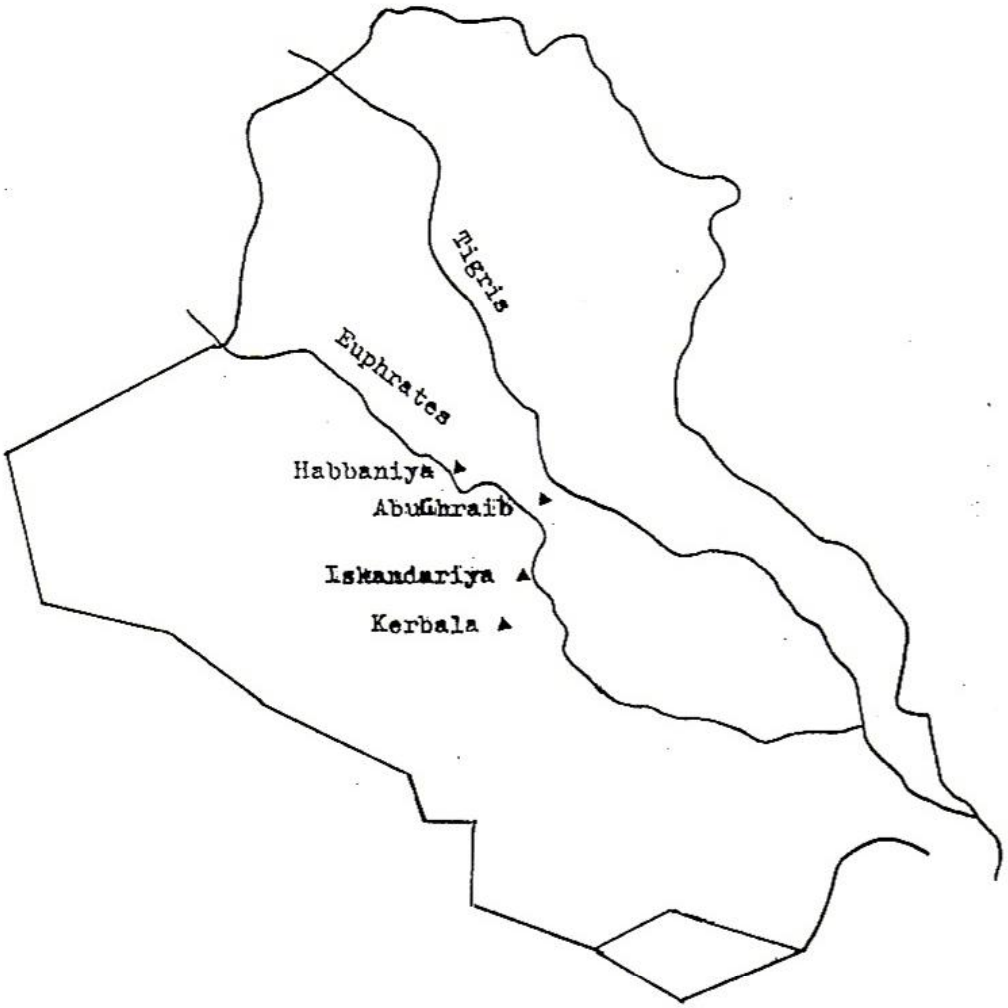
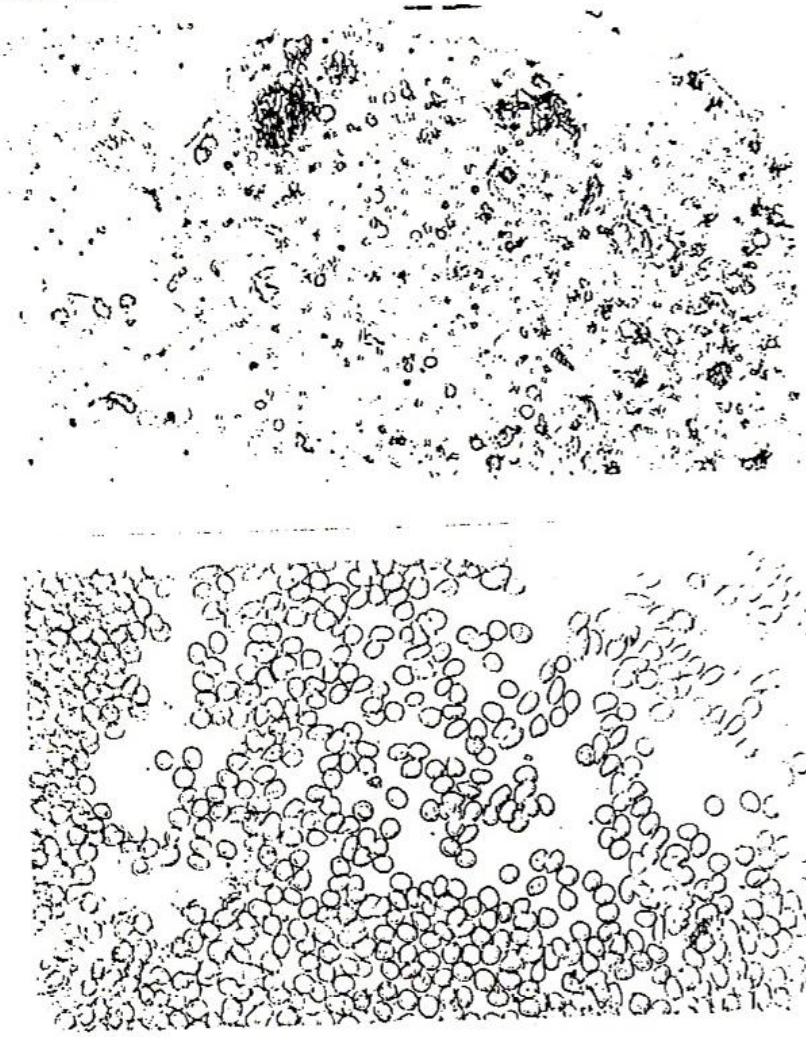


Fig. 1 . The location of the four sites in the Middle Iraq from which bats were collected during the study period.



A

B

Fig. 2.: The blood cells observed in the guts of Chelatonella sp. A, and in the blood sample taken from bats B.