

## NEMATODE PARASITES OF SOME IRAQI BATS

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### ABSTRACT

Three species of nematodes are recorded from alimentary tracts of some Iraqi bats for the first time, while reporting *Thelandros alatus* constitutes first record of this species from mammals. Information on infection rate, distribution and hosts are provided along with some relevant remarks.

### INTRODUCTION

Bats comprise 20% of wild mammals of Iraq (Mahdi and Georg, 1969). Surprisingly, there is no published work on the nematodes of these insectivorous creatures in Iraq; some previous work was devoted to trematodes (Matskasi, 1980; Mahmoud and Jawdat, 1982; et. al., 1986). The present work provides a preliminary survey, occurrence, infection rates and some important information on *Telandros alatus* Wedl 1882, *Capillaria pipistrellii* Amaguti 1941, *Physaloptera brevianata* Seurat 1917, and larvae of Spiruridae.

### MATERIALS AND METHODS

A total of 70 bats belonging to 4 species were collected by mist net during Sept. 84—June 86 from 5 localities in the middle of Iraq and one in the upper Euphrates. They were kept in 4% Formalin in the field, dissected in the laboratory, and their gastrointestinal tracts searched for nematodes. The recovered parasites kept in 70% alcohol sent to the second author for identification. All measurements included in Tables 2—4 are in mm unless otherwise stated.

### RESULTS

Table 1 summarized the results of infection for each bat species and the number of nematodes harboured. This would show that the mean infection rate among the 70 bats studied was 18.6%. It shows also that the infection

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Table (1)  
Localities of bats, percent of infection with nematodes

species of bat	loc. and date	no. exam.	no. inf	% in	sp. of nematode	male	female	unknown	total
<i>Aselia tridens</i>									
<i>murriana</i>	Tar Caves								
=	Oct. 84	9	3	33.3	<i>Thelandros alatus</i>	—	6(4)	—	6(4)
=	=	9	1	11.1	larva of Spiruridae	—	—	2(2)	2(2)
=	Mahmodiya	17	2	11.8	<i>Physaloptera</i> <i>brevivaginata</i>	4	10(3)	—	14(3)
<i>Pipistrellus kuhlii</i>	Oct. 85								
	Baghdad								
<i>Ikhwanius</i>	Sept. 84	6	1	16.7	=	2	4	—	6
=	Ukhaider	11	2	18.2	=	3	5	—	8
	June 85								
<i>Myotis capaccinii</i>	Haditha	14	2	18.2	<i>Capillaria</i> <i>pipistrelli</i>	2	31	—	33
	Oct. 84								
<i>Taphozous</i>	Babel								
<i>nudiventris</i>	Oct. 84	4	2	50	<i>Thilandros</i> <i>alatus</i>	14(3)	18(11)	15(15)	47(29)

Figures in parentheses represent number of Juveniles

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rates for *Thelandros alatus*. in two bathots are the highest when compared with other nematodes. The nematode *Phsalopter brevaginata* is widely distributed among localities and hosts. followed by *T. alatus* While *C. pipistrelli* and thespirarid larva are reported from one locality and one host for each of them.

*Thelandros alatus* Weld 1862 (Oxyridae) (Figs 1-8)

Distribution : Egypt, Algeria, Africa, Iraq.

Hosts : Reptiles : *UromnasiX spinipes*, *U. harwickii*. *Testudo Kleinmanni*. *Accounties*, *Agama*, *Anniella*, *Trachysarus*.

Bats : *Aseilia tridens murriana*, *Taphozous nudiventris magnus*.

Localization : Intestine

Description : in : (Luckner, 1951; Skrjabin et al., 1974)

Remarks: This nematode is the type species of genus *Thelandros*. *Telandros avis*. *T. micruris* and *T. sahariensis* are synonymes of it.

As the natural host of genus *Thelandros* is the reptiles, we have some questiones about it that found from the mamals. However, the identification against these parasietes corrected as *T. alatus* by morphological charactoriticss and mearsurements. It is the first time here to report it from any mammal. Table 2 give comparisions between Iraqi and Indian specimens of *T. alatus*. and that of North Africa (*T. sahariensis*) and of India (*T. micruris*) Excluding the very small *T. micruris*, Iraqi material seems more allied to North African than Indian specimens.

*Capillaria piplestreli* Yamaguti 1941 (Tridchuridae) (Figs. 9—13; Table 3)

Distribution : Spain, Japan, Iraq.

Hosts : Bats : *Rhinolophus c. cornutus*, *Hipposideros torpis*, *pipistrellus abramus*, *Nyctalus marimus avitor*, *Myotis capaccinni*

Localizaation : small intestine and stomach.

Desscription : In : Skrjabin ea al., 1970; Kagei et al, 1979)

Remarks : Genus *Capillaria* is well known from the vetebrates and sixteen species of had been reported from bats. The distinguished character of the present species is the cuticular and cylindrfial vulvar process (Fig. 12).

*Physaloptera bravivaginata* Seural 1917 (Physalorptteridae) (Figs. 14—20)

Distribution : Algeris. Afghanistan, Iraq.

Hosts: Bats *Scotophilus hoathi*, *Nyctalus montannus*, *Taphozous nudivontris*,

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*Vesperililio hueti, plecotus auritus, pipistrellus kuhhlii ikhwantus*

Localization : intestine

Description : (In : Barus and Tenora, 1970)

Remarks : As shown in Table 4 the Iraqi specimens are much smaller than Afghaneese ones in the relative size of different organs. Eggs of Iraqi material are longer but narrower than Afghaneese ones.

Larvae of Spiruridae (Fig. 21) : Only two larvae were recovered from the stomach of *Asellia tridens murriana* (Table 1). Possible measurements of one of them as follows : body length. 3.08, body width 0.1, distance of nerve ring 0.13, length, of oesophagus 0.14, length of ventriculus 0.92, tail length 0.07. The idenniity of larvae cannot be ascertainned untill adults are recovered

### DISCUSSION

Reporting *Thelandros alatus* from *Asellia tridens murrian* and *Taphazous nudiventris mangnus*; *Capillaria pipstrelli* from *Myotis capacoini* and *physaloptera breviginata* from *pipistrellus kuhill ikhwamius* consititute new host records for these nematodes which in their turn reported here for the first time in Iraq.

A total infection rate of Iraqi bats is 18.6% (Table 1) seems high when compared with 7% reported by Barus and Tenora (1980) for Afghaneese bats. This may reflect the differences between the two localities regarding the principal eiological factors influencing the spread of parasites among hosts. It may also be due to the smaller sample size this study.

The most interesting ffinding of this study is the presence of *T. alatus* in two bat species. This nematode is well known, as a pinworm, from a variety of lizards (Lucker, 1951). Its presence in two host species as well as its high infoction rate and high parasitemia suggest that it is well established among Iraqi bats. However, such finding is not very unusuall since Walton (1941) reported *Thelandros oswaldocruzi* from a frog; *Hyla* sp. in BraZil and Skrlabin and Soblev (1964) found *Phsaloptera retusa*, the nematode which is mainly a parasite of reptiles, parasitizing bats.

A considerable variations of measurements observed between specimens of *T. alatus* collected from different hosts and localities put Iraqi specimens more closer to North African ones (Table 2). However, Luiker ( 1951 ) concluded that there are no adequate grounds for the separation of

Table (2)  
Comparison of measurements of *T. alatus* collected from Iraq and India and its synonyms

Sex/Measurements	Iraq	India (Skriabin 1960)	North Africa <i>T. sahariensis</i> , Skriabin 1960)	India <i>T. micrurus</i> Skriabin 1960)
<b>Male</b>				
body length	4.06—4.73	3.5	2.2—2.43	0.27
body width	0.29—0.38	0.2	0.3—0.34	0.025
length of oesophagus	0.49—0.54	0.62	0.55—0.7	0.06
tail length	0.069—0.079	0.082	—	—
length of spicule	0.098	0.08—0.09	0.075—0.092	—
<b>Female</b>				
body length	5.27—5.82	5.75	3.3—4.2	0.53
body width	0.47—0.61	0.25	0.5—0.54	0.05
distance of nerve ring	1.36	—	0.13—0.14	—
length of oesophagus	0.69	—	0.85—0.9	—
distance of vulva	2.97—3.39	—	1.8—2	middle of body
tail length	0.32—0.37	0.37	0.2—0.31	0.02
eggs	121—125 X	140 X 80 um	133—140 X	100 X 50 um
	66—71 um			

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Table (3)  
Comparison of measurements of male and female of *Capillaria pipistrelli*

Sex/Measurements	Iraq	Spain	Japan
		(Skajabin, <i>et al</i> 1957)	(Kagei <i>et al.</i> 1979)
Male			
body length	4.08		5.96—6.73
body width	0.052	unknown	0.052—0.054
length of oesophagus	2.04		2.27—2.35
Female			
body length	3.76	10.5—12.2	6.76—9.64
body width	0.042	0.084—0.105	0.078—0.09
length of oesophagus	1.36	3.15—3.2	2.998
distance of vulva	1.38	3.4—4.3	2.62—3.05
eggs	48—50 X	48—54 X	41.4—47.8 X
	22—24 um	23—30 um	22.1—24.4 um

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Table (4)

Comparison of measurements of *Physaloptera brevivaginata*

between Iraqi and Afghanese specimens.

Sex/Measurements	Iraq	Afghanistan Barus and Tenora, 1970)
<b>Male</b>		
body length	6.88—8.48	8.11—13.41
body width	0.46—0.56	0.59—0.83
length of oesophagus	0.35	0.31—0.37
length of ventriculus	2.08—2.57	2.55—3.12
distance of nerve ring	0.16—0.26	0.29—0.31
tail length	0.48—0.7	0.57—0.88
<b>Female:</b>		
body length	6.06—14.73	12.48—18.72
body width	0.32—0.92	0.9—1.12
length of oesophagus	0.26—0.36	0.35—0.42
length of ventriculus	1.67—3.3	2.61—3.9
distance of nerve ring	0.13—0.19	0.29—0.34
tail length	0.17—0.32	0.34—0.53
distance of vulva	3.19—5.7	4.99—7.48
eggs	40—46 X	37—43 X
	24—26 um	26—29 um

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*T. alatus*, *T. micruris*, and *T. sahaiensis* on the basis of measurements and he considered the last two as synonyms of the first.

*Capillaria pipistrelli* was described by Yamaguti (1941) depending on the females only. The male had not been known for a long time until Yamashita and Mori (1953) found it. Skrjabin et al. (1970) stated that the male is unknown from Spanish material. Thenafter, Kagei et al. (1979) found the male from Japan. So, this the third time that the male reported.

As shown in Table 3 males of the present specimens and Japanese ones are longer, but on comparing the females with Spanish and Japanese specimens it is clear that the present material is exceedingly smaller.

The nematode *Physaloptera brevivaginata* is a palaeretic element and its presence in Iraq is expected. A comparison between Iraqi and Afghanese specimens (Table 4) shows that the latter are larger.

Considering that the specimens compared were taken from different hosts, these differences are not important. Hartwich (1966) found considerable variations in measurements among specimens of *Physaloptera galinieri* taken from four different avian hosts.

Generally, differences observed in measurements between specimens of the same species of nematodes collected from different hosts and areas must be regarded as a specific individual variations.

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Explanations of figures

- Fig 1 *Thelandros alatus*, larva of female (whole body)
- Fig 2 *Thelandros alatus*, anterior part (oesophagus and vulva)
- Fig 3 *Thelandros alatus*, anterior part (nerve ring)
- Fig 4 *Thelandros alatus*, tail of female
- Fig 5 *Thelandros alatus*, tail of male (lateral view)
- Fig 6 *Thelandros alatus*, tail of male ventral view)
- Fig 7 *Thelandros alatus*, female (vulva and vagina)
- Fig 8 *Thelandros alatus*, eggs
- Fig 9 : *Capillaria pipistrelli* male (whole body)
- Fig 10 : *Capillaria pipistrelli* female (whole body)
- Fig 11 : *Capillaria pipistrelli* tail with spicule of male
- Fig 12 & 13 : *Capillaria pipistrelli* eggs

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- Fig 14 : *Physaloptera brevivaginata*, anterior part of larva (oesophagus, nerve ring and ventriculus)  
Fig 15 : *Physaloptera brevivaginata*, anterior end  
Fig 16 : *Physaloptera brevivaginata*, vulva and vagina  
Fig 17 : *Physaloptera brevivaginata*, tail of female  
Fig 18 : *Physaloptera brevivaginata*, tail of male  
Fig 19 : *Physaleptera brevivaginata*, tail of female  
Fig 20 : *Physaloptera brejivaginata* egg  
Fig 21 : larva of Spiruridae (Whole body)

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### الديدان الخيطية في بعض الخفافيش العراقية

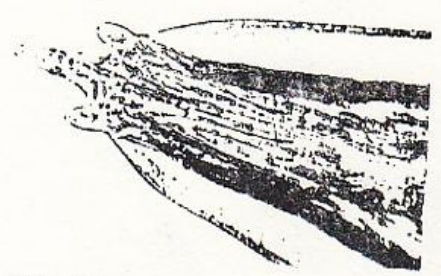
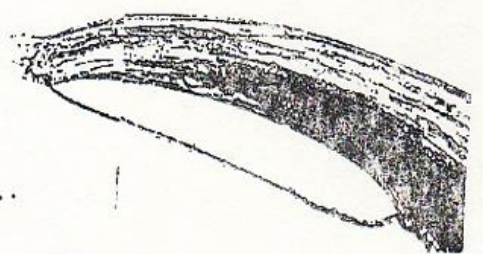
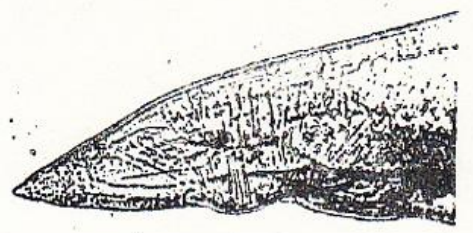
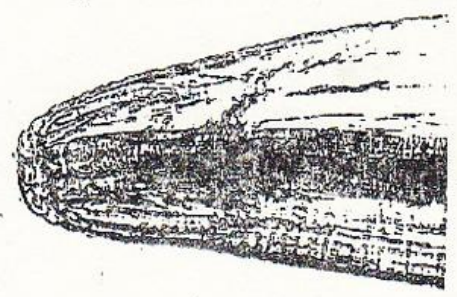
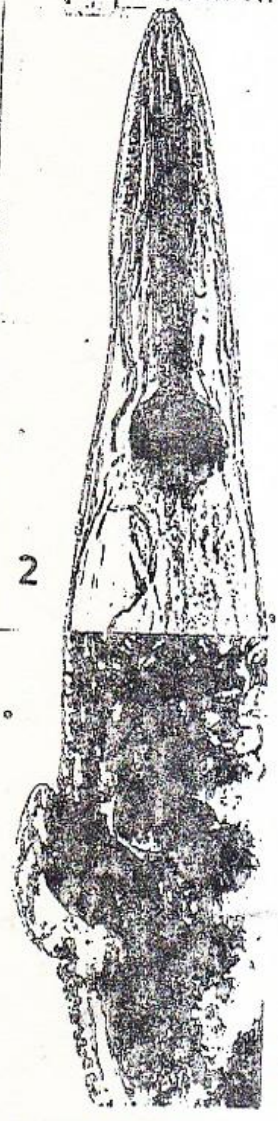
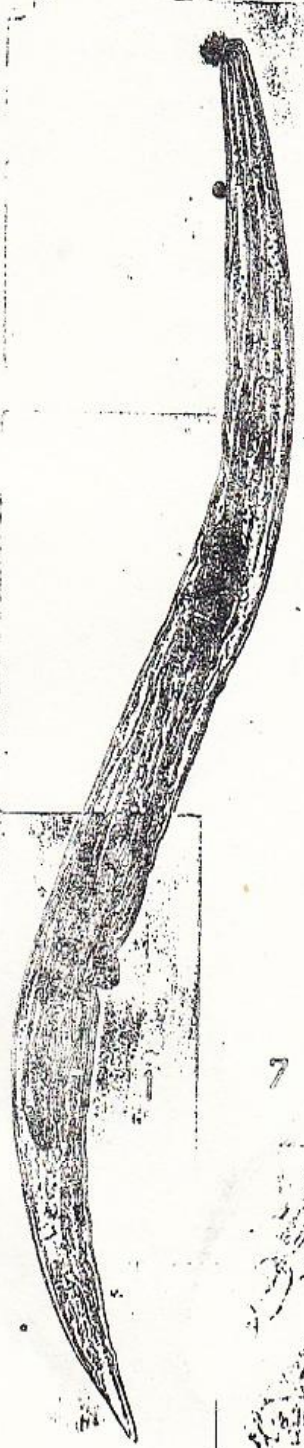
محمد كاظم محمد ونوبورو كاكي

متحف التاريخ الطبيعى ، جامعة بغداد - بغداد  
ومعهد الصحة الوطنى ، طوكيو ، اليابان

### الخلاصة

تم تسجيل ثلاثة أنواع من الديدان الخيطية المتطفلة في القناة الهضمية لبعض الخفافيش العراقية لأول مرة فيما يعتبر وجود الطفيلي *Thelandros alatus* أول تسجيل له من اللبائن . أعطيت المعلومات حول نسب الإصابة والتوزيع المضائف مع بعض الملاحظات المتعلقة بالموضوع .

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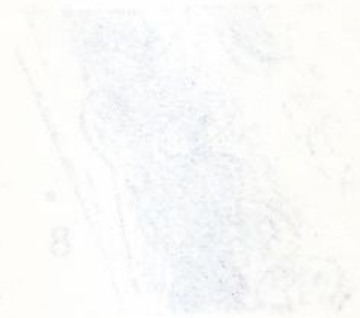
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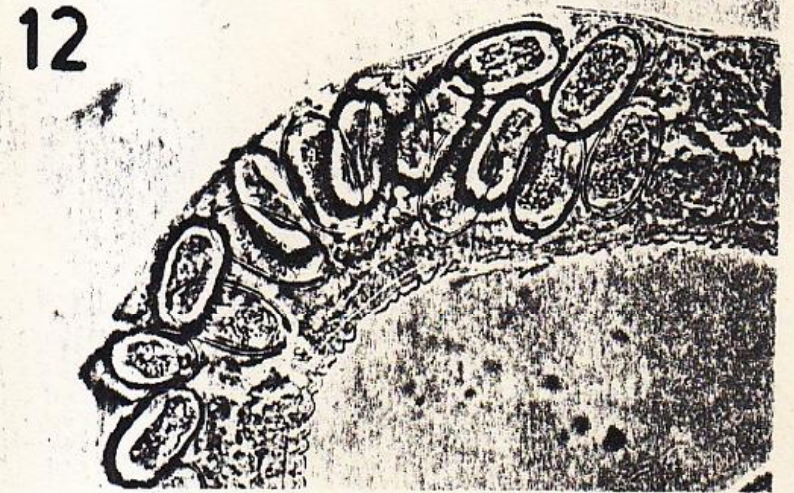
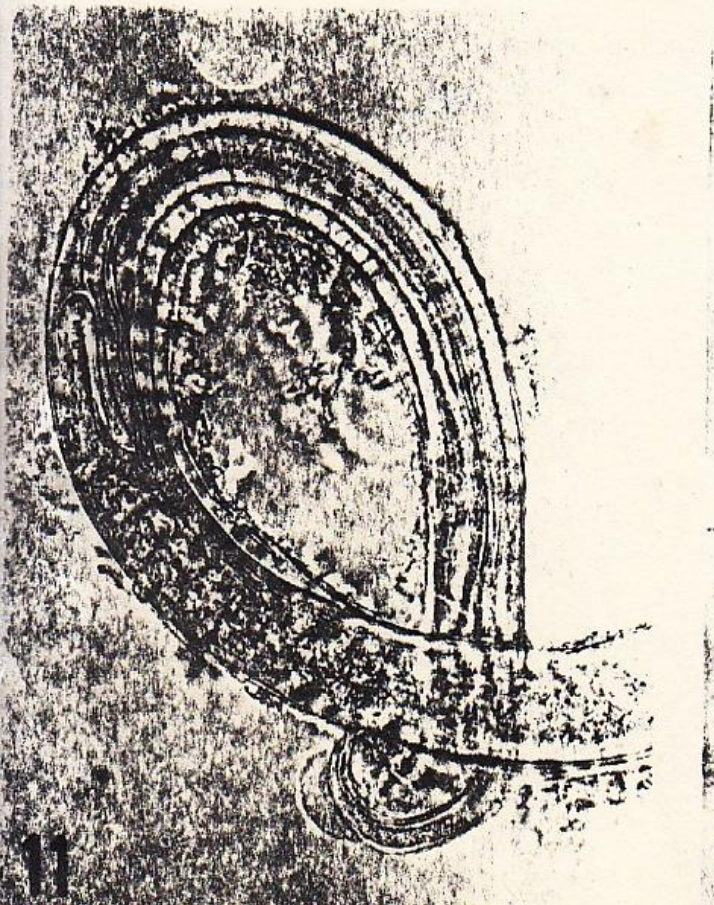
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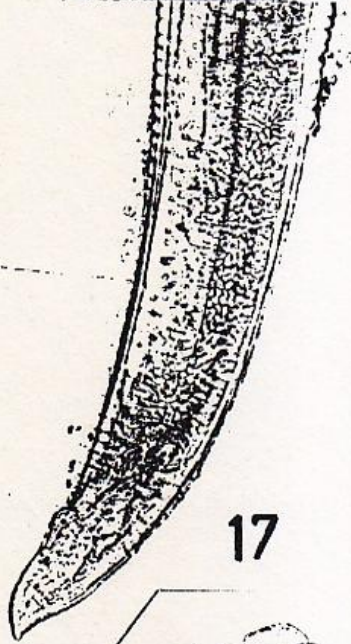
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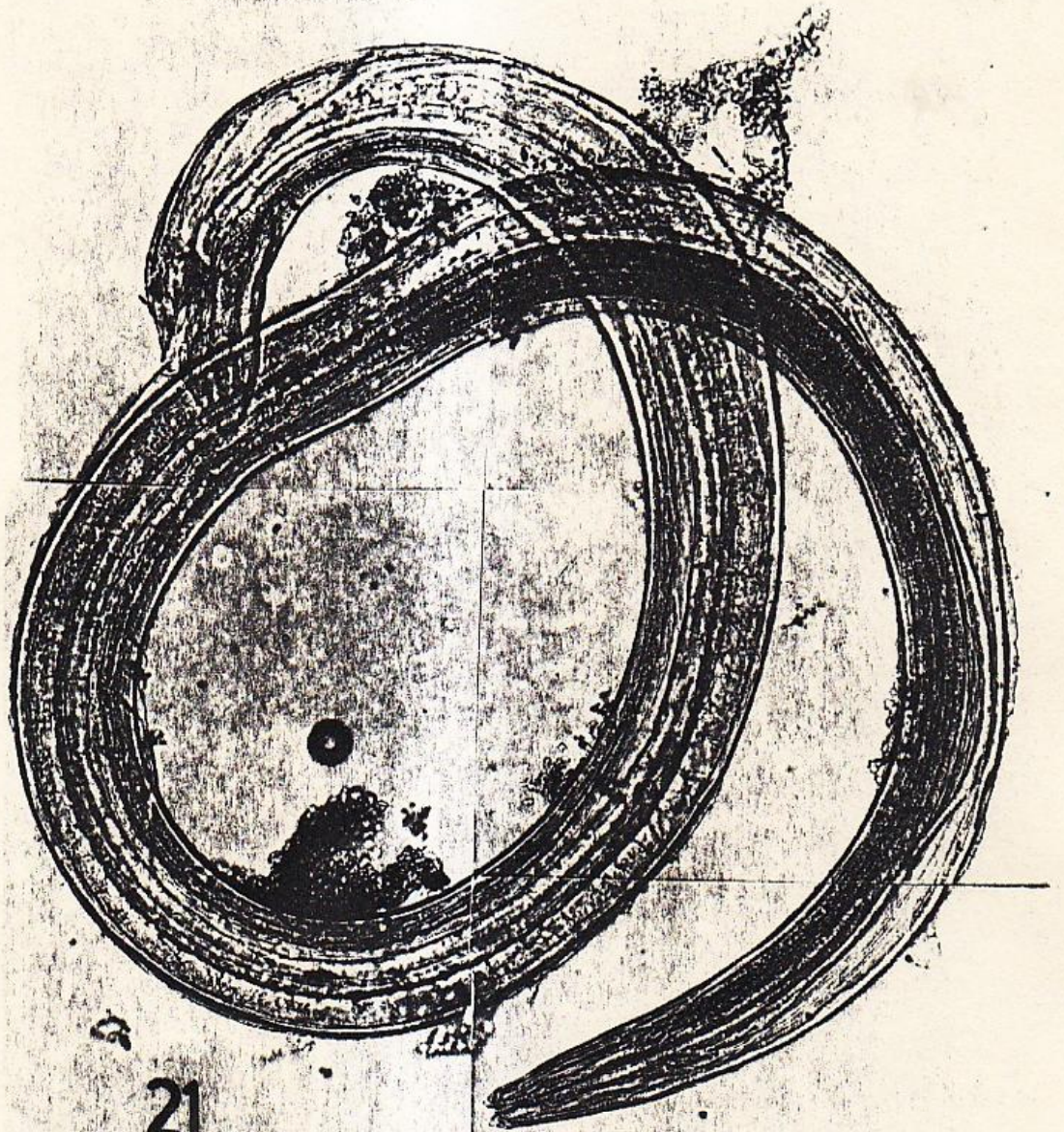
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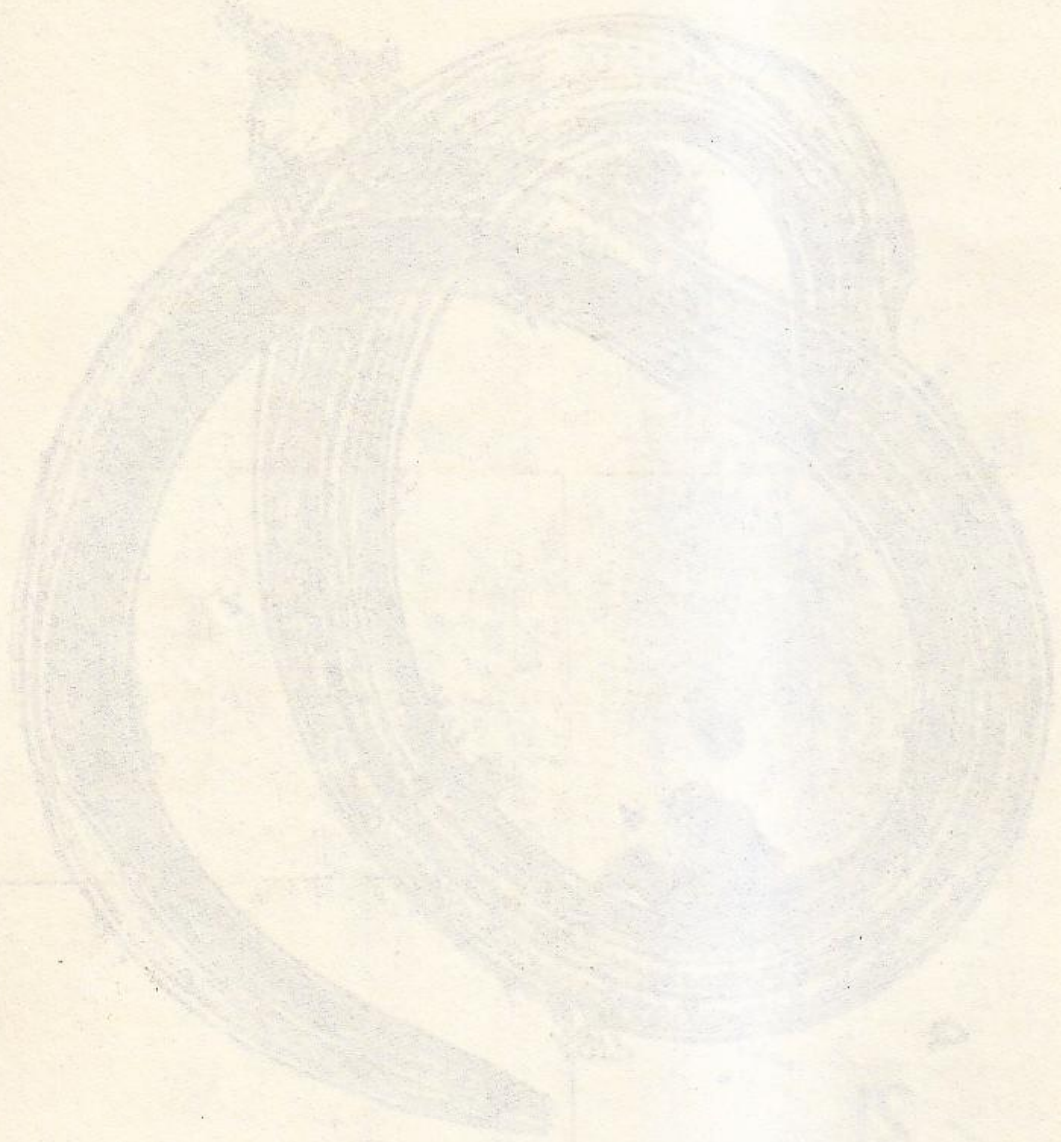




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Port note

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NATURAL ENEMIES OF WHITEFLIES IN IRAQ

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During the syrvey on natural enemies of whiteflies in Iraq, the following predators were recorded.

Predator species	Stage of attack	Whitefly species	Locality
<b>HEMIPTERA</b>			
<b>Anthocoridae</b>			
<i>Anthocoris</i>	Nymph & Adult	<i>Bemisia tabaci</i>	Yousifiya
<b>Miridae</b>			
<i>Derascoris paliens</i>	Nymph & Adult	<i>Bemisia tabaci</i>	Rashdiya
<b>Lygaeidae</b>			
<i>Geocoris albipennis</i> F.	Nymph & Adult	<i>Bemisia tabaci</i>	Rashdiya
<b>Nabidae</b>			
<i>Nabis ferus</i> L.	Nymph & Adult	<i>Bemisia tabaci</i>	Abu-Ghraib
<b>COLEOPTERA</b>			
<b>Coccinellidae</b>			
<i>Erochomus nigripennis</i> (Er.)	Adult	<i>Bemisia tabaci</i>	Yousifiya
<i>Nephus binunctatus</i> Kug.	Adult	<i>Bemisia tabaci</i>	Baghdad
<b>Nitidulidae</b>			
<i>Cybccephalus</i> sp.	Adult	<i>B. tabaci</i>	Rashidiya
<b>Staphylinidae</b>			
<i>Paederus fuscipes</i> (Curt.)	Adult	<i>B. tabaci</i>	Rashidiya
<b>NEUROPTERA</b>			
<b>Chrysopidae</b>			
<i>Chrysopa carnea</i> Steph.	Larva	<i>B. tabaci</i>	"& Moqdadiya
<b>Trialauroces</b>			

