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FIRST RECORD OF FIVE NEMATODES FROM IRAQI TURTLES

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ABSTRACT

During a survey on the helminthic parasites of three species of turtles in the north part of Iraq, five species of nematodes were recorded for the first time in Iraq. They were all found in the intestine. These are, *Camallanus microcephalus* (Dujardin, 1845) recorvered from the turtle *Clemmys caspica; Spironoura japonensis* (Yamaguti, 1935) from *Triopyx euphraticus* and *Angusticaecum holopterum* (Rudolphi, 1819), and *Tachygonetria nicollei* (Seurat, 1918) from the turtle *Testudo graeca*. Alll of the localities and hosts are newly recorded in Iraq.

INTRODUCTION

Although the parasitic fauna of some Iraqi vertebrates, has received some attention, such as fishes (Herzog 1969; shamsuddin *et al.*, 1971), frogs (Saoud and Roshdy, 1970; Dauood, 1974; Al-Barwari *et al.*, 1980; Hamad, 1985) rats and mice (Mahmoud, 1974; Salih, 1975; Hussein, 1986), cats and dogs (Al-Saffar *et al.*, 1962; Babero *et al* 1963; Al-Saeed, 1983), Birds (Zangana, 1982; Mustafa, 1984; Molan et al., 1986), and cattle, sheep and goats (Kadhim, 1979, Al-Dulimi *et al.*, 1986), but little information is available on the parasites of turtles in Iraq, and actually, as for as we concern, only one limited study has been done on the digenetic trematodes (Hamad, 1985). No previous work has been done on the nematode parasite of turtles in Iraq thus the purpose of this study is to present data resulting from examinations made on 44 turtles of three species.

MATERIALS AND METHODS

Forty four fresh water turtles were captured from three provinces in the north part of Iraq, namely Arbil, Sulimaniah, and Kirkuk. Of these turtles, 30 were *Clemmys caspica*, 12 were *Testudo graeca*, and two were *Trionyx euphraticus*.

All the turtles were dault. Both male and female specimens were examined, according to their availability. The turtles were killed, mostly with chloroform, and dissected as soon as possible after they had been caught. The alimentary canals were removed and placed in petri-dishes containing physiological saline. Each alimentary canal was divided into three parts, namely stomach, small and large intestine. Each part, then was opened and its contents were examined for helminths. The nematodes were fixed in hot (60 °C) 70% alcohol and then stored in 70% alcohol containing 3% glycerine.

Nematodes recorded in this study are deposited in Department of Biology, Education College Salahaddin University. Duplicates were sent to C. A. B. International Institute of Parasitology, London. for identification.

RESULTS AND DISCUSSION

Five species of nematode parasites were recovered from the alimentary canals of three species of turtles collected from rivers in Arbil, Sulimaniah and Kirkuk, North of Iraq.

Table 1 gives the names of the parasites and the corresponding turtle hosts from which they were recovered. It also summarizes the data on the infection rate and the average number of parasites per infected host.

The nematodes reported in this investigation were :

1. *Camallanus microcephalus* (Dujardin, 1845).

This nematode was found in the small intestine of the turtle, *Clemmys caspica*. The percentage infection with this nematode was 13.3% in turtles collected from Arbil, 37.5% among those collected from Sulimaniah, and it was 42.9% among the turtles collected from Kirkuk province (Table 1).

Rausch (1947) found this nematode in the small intestine of the Blandin's turtle, *Emys blandingij*. Guilfird (1959) also found this nematode in four species of turtles, namely, the painted turtle, *Chrysemys picia;* snapping turtle, *Chelydra serpentina;* wood turtle *Clemmys insculpta;* and Blanding's turtle *Emys blandingii*. Esch and Gibbons (1967) found this nematode in the turtle, *Chrysemys picta* collected from Michigan, and the incidence of infection was 58.7%.

2. *Angusticaecum holopterum* (Rudolphi, 1819)

This nematode has been found in the large intestine of *Testudo graeca* only, and it was foundin eight out of 12 turtles captured in Sulimaniah, and

Table 1 : Nematodes found in the intestines of three species of turtles collected from northern Iraq.

Turtle species	No. examined	Location	Nematode species	Percent of infection	Parasites/ host
Clemmys caspica	11	Arbil	Atractis dactyluris	20.0	43
			Camallanus microcephalus	13.3	2
			Tachygonetria nicollei	33.3	50
Clemmys caspica	8	Sulimaniah	Atractis dactyluris	37.5	200
			Camallanus microcephalus	37.5	7
			Tachygonetria nicollei	12.5	40
Clemmys caspica	11	Kirkuk	Atractis dactyluris	27.3	7
			Camallanus microcephalus	42.9	3
			Tachygonetria nicollei	14.3	25
Testudo graeca	12	Sulimaniah	Atractis dactyluris	33.3	>500
			Angusticaecum holopterum	66.7	6
			Tachygonetria nicollei	33.3	>500
Trionyx euphraticus	2	Kirkuk	Spironoura japonensis	50.0	9

the incidence of infection was 66.7% (Table 1).

3. *Atractis dactyluris* (Rudolphi, 1819)

This was the most common nematode found in the large intestine of both *Clemmys caspica* and *Testudo graeca*, and it was numerous in *T. graeca* (see Table 1). The incidence of infection was 20.0%, 27.3% in *C. caspica* collected from Arbil, Kirkuk and Sulimaniah respectively, while it was 33.3% in *T. graeca* collected from Sulimaniah province.

Harwood (1932) found a closely related species, *Atractis carolinae* in the turtle, *Terrapene carolina* ?, collected from Huston.

4. *Techygonetria nicollei* (Seurat, 1918)

This nematode was found for the first time in the intestine of tortoises in Algeria (Seurat, 1918). In the present study it was found in the large intestine of four of 12 *Testude graeca* collected from Sulimaniah province. The incidence of infection was 33.3%.

5. *Spironoura japonensis*, (Yamaguti, 1935).

It was found in the large intestine of only one turtle, *Trioryx euphraticus* captured in Kirkuk province. The incidence of infection was 50.0%.

Rausch (1947) found a very close species namely, *Spironoura affine* and *S. concinnae* in the sportted turtle, *Clemmys guttata* and in geographic terrapin, *Graptemys geographica*. ? Rosen and Marquardi (1978) found from central Arkansas.

Spironoura concinnae in the colon of the turtle *Pseudemys scripta* collected

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LITERATURE CITED

Al-Barwari, S. E. and Nassir, J. K. 1983. First record of the species of helminthic parasites from vertebrates in Iraq *Iraqi J. Sci.*, 42: 101—108.

Al-Dulimi, S. S., Jassim, B. A. and Molan, A. L. 1986. A survey on some gastrointestinal helminth parasites in cattle of Arbil. *J. Biol. Sci Res.*, 17 (2) : 197—203.

Al-Saeed, W. M. (1983). Studies on parasites of public health improtance from cats in Mosul. M. Sc. Thesis, Mosul University.

Al-Saffar, A. A., Babero, B. B., Al-Dabagh, M. A. and Shaheen, A. S. (1962). The zoonosis of animal parasites in Iraq. III. The dog as a reservoir for human nematode infections. *Bull. End. Dis., Baghdad,* 4: 1—17.

Babero, B. B., Shaheen, A. S., Al-Dabagh, M. A., Shakarchi, A. R. and El-Shawi, N. (1963). The zoonosis of animal perasits in Iraq. VI Preliminary observations on human helminthiasis with notes on other such studies. *J. Fac. Med., Baghdad* 5H8—33.

Dauood, K. S. 1974. Studies on protozoan and trematode parasites of some amphibians. M. Sc. Thesis, Mosul University.

Esch, G. W. and Gibbons, J. W. (1967). Seasonal incidence of parasitism in the painted turtle, **Chrysemys picta marginata** Agassiz. *J. Parasit.,* 53 (4) : 818—821.

Guilford, H. G. (1959). Some helminth parasites found in turtles from Northeastern Wisconsin. *Tran. Wisconsin Acad Sci Art Letters,* 48 : 121—124.

Hamad, N. R. (1985). Taxonomic study of digenetic trematodes of some vertebrates in some parts of Northern Iraq. M. Sc. Thesis, Salahaddin University.

Harwood, P. D. (1932). The helminths parasitic in the amphibia and reptilia of Houston, Texas, and Vicinity. *Proc. Unit. Stat Nation. Museum.* 81 : 1—71.

Herzog, D. H. (1969). Untersuchungen uber die perasiten der suess wasser Fich des Iraq. *Arch. Fischerewiss,* 20(213) : 132—147.

Hussein, M. M. S. (1986). A survey of some endoparasites of house rodents in Arbil Arca. M. Sc. Thesis, Salahaddin University.

Kadhim, . K. (1979). Gastrointestinal helminth parasites of cattle in Iraq. *The Veterinaria* 1(1) : 84—89.

Mahmoud, S. N. (1974). Incidence and distribution of helminth parasites of the digestive tract of rats and mice of the family muridad in Baghdad area. M. Sc. Thesis. Baghdad University.

Molan, A. L., Saeed, I. S., Mahmood, K. and Khairallah, A. R. (1986). Survey of helminths of the digestive tract of *Sturnus vulgaris*. *Proc. 4th. Scientific Conf. SRC Baghdad*, 5(1) : 267—279.

Mustafa, F. A. J. 1984. Epidemic study on some cestodes infecting the alimentary canal of pigeons. M. Sc. Thesis. Basrah University.

Rausch, R. (1947). Observation on some helminths parasitic in Ohio turtles. *Am. Mid. Nat.* 39 : 434—442.

Rosen, R. and Marquardt, W. C. (1978). Helminth parasites of the red-eared turtle *(Psbeudemys scripta elegans)* in Central Arkansas. *J. Parasit.* 64(6) : 1148—1149.

Salih, W. M. (1975). Studies on the protozoan and helminth parasites of some rodents in Mosul district, Iraq. M. Sc. Thesis. Mosul University.

Saoud, M. F. A. and Roshdy, M. A. 1970. On *Halipegus alhaussaini* n. sp. (Trematoda : Halipigidae) from *Rana esculenta* in Iraq, with notes on *Halipegus* and related genera. *J. Helminth*, 44 : 349—356.

Shamsuddin, M., Nader, A. A. and Al-Azzawi, M. J. (1971). Parasites of common fishes from Iraq with special references to larval form of *Contracaecum*. *Bull. Biol. Res. Cen.*, 5 : 66—78.

Zangana, M. F. 1982. Study on the parasites of domestic pigeon *Columba livia domostica* in Nineva and some areas of Erbil and Duhouk Provinces, M. Sc. Thesis, Mosul University.

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تسجيل جديد لخمسة انواع من الديدان المدورة في السلاحف العراقية

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قسم علوم الحياة ـ كلية التربية ، جامعة صلاح‌الدين ، اربيل ، العراق

الخلاصة

لقد تم العثور خلال المسح الذى اجرى للتحرى عن الديدان الطفيلية في ثلاثة أنواع من السلاحف العراقية (*Clemmys caspica*) و *Testudo graeca* (*Trionyx euphraticus*) على خمسة أنواع من الديدان المدورة في القناة الهضمية ، وهى كما يلي : *Camalianus microcephalus* و *Spironoura japonensis* و *Atractis dactyiuris* و *Angusticaecum holopterum* و *Tachygonstria nicollei* وجميع هذه الديدان يتم تسجيلها لاول مرة في العراق ، كما ان تسجيلها في هذه الانواع من السلاحف يعتبر الاول من نوعه .

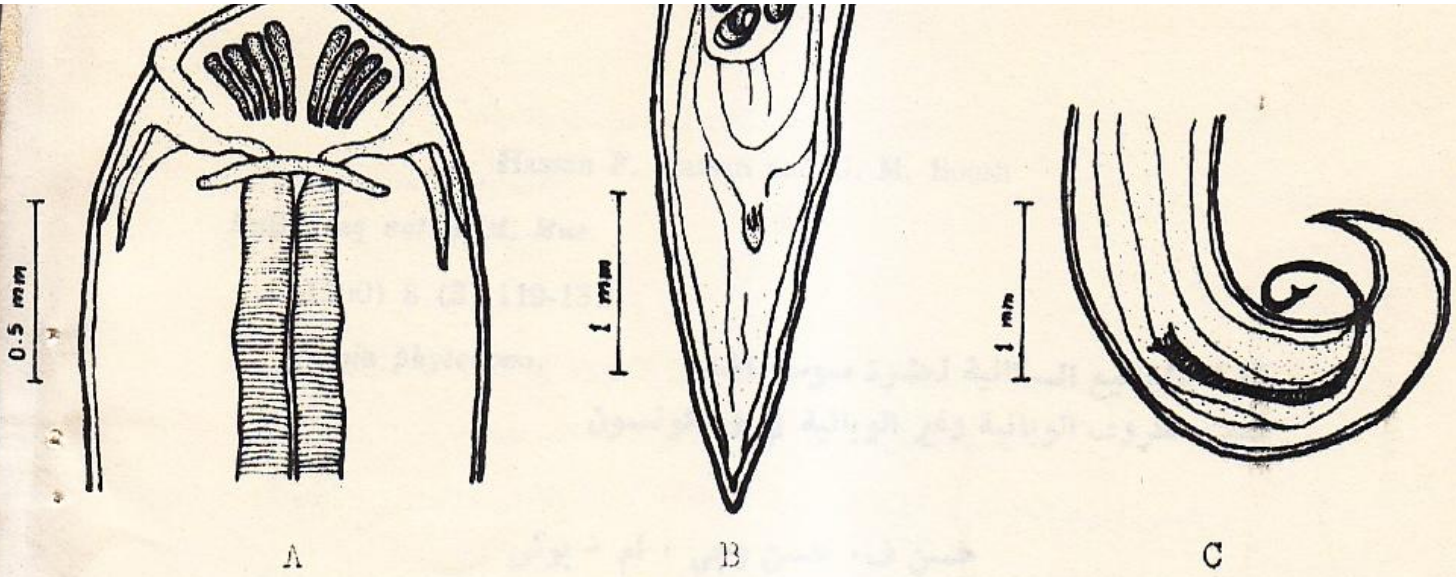


Figure 1. Camallanus microcephalus. A.Anterior end. B.Tail of female. C.Tail of male.

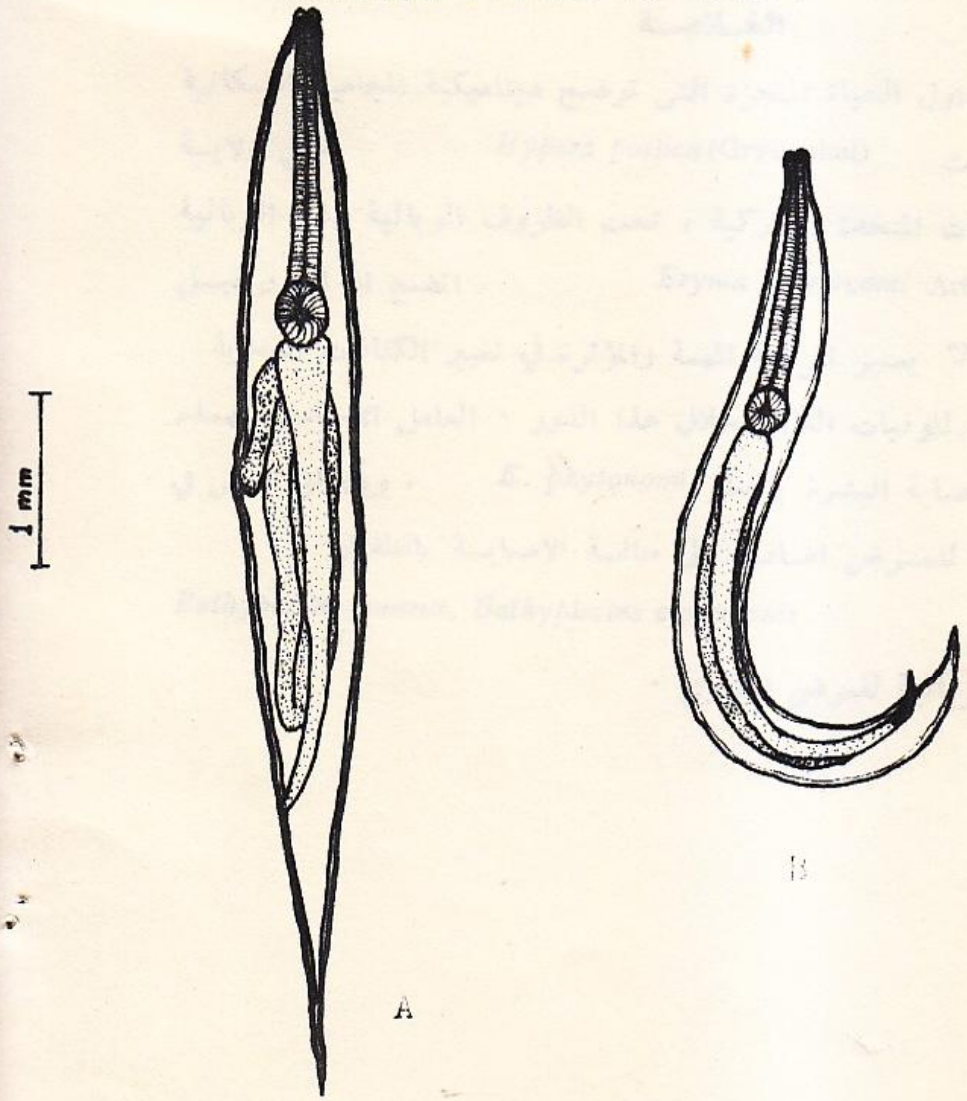
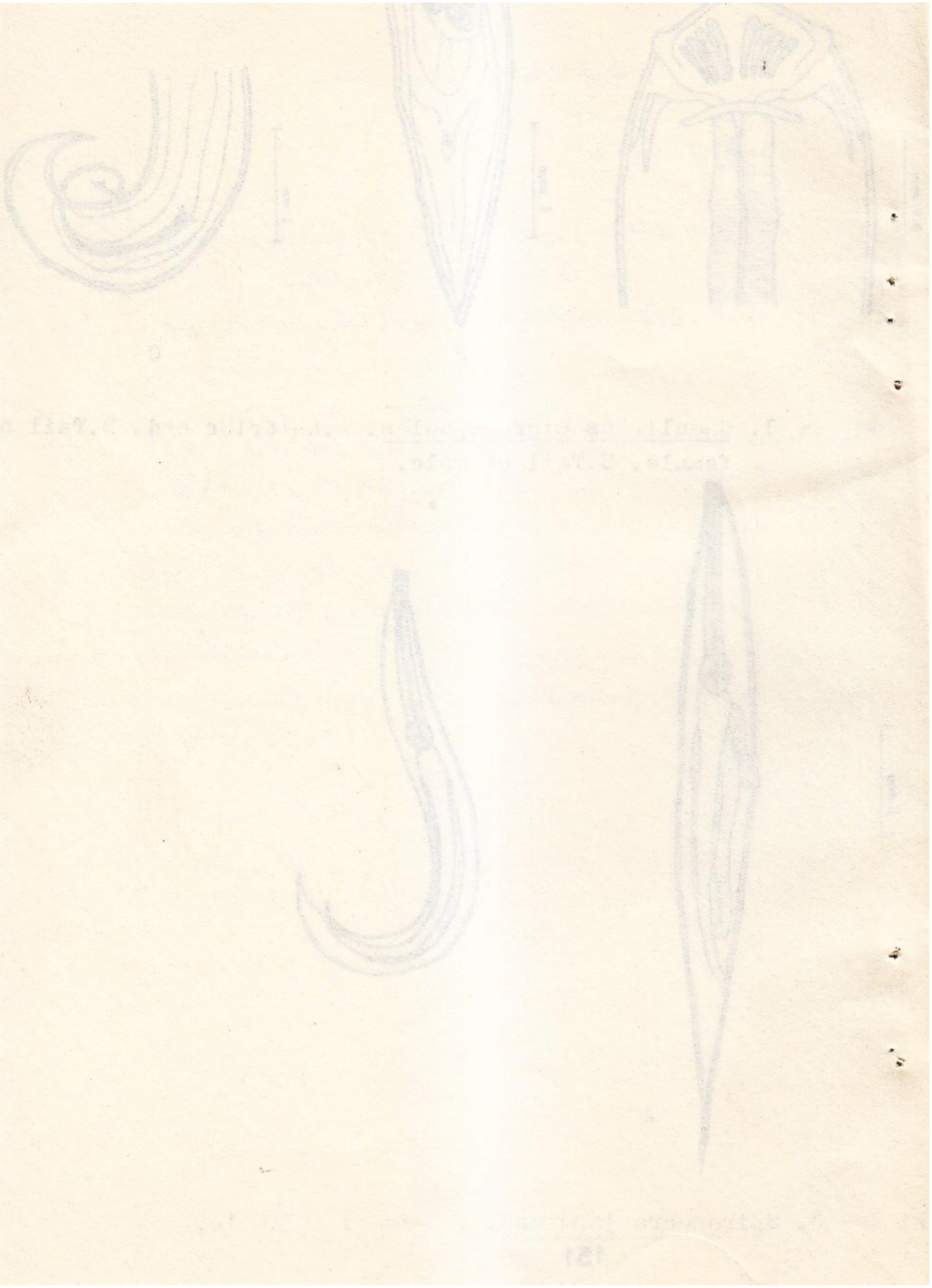


Figure 2. Spirocamra japonensis. A.Female. B.Male.



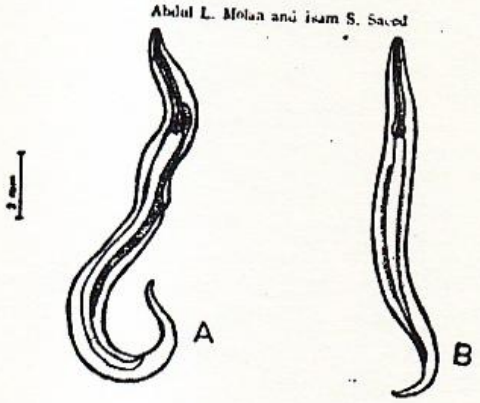
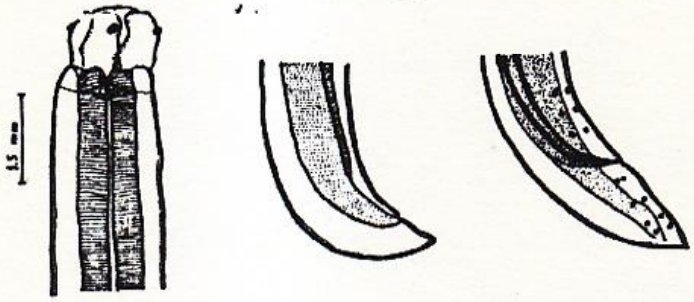
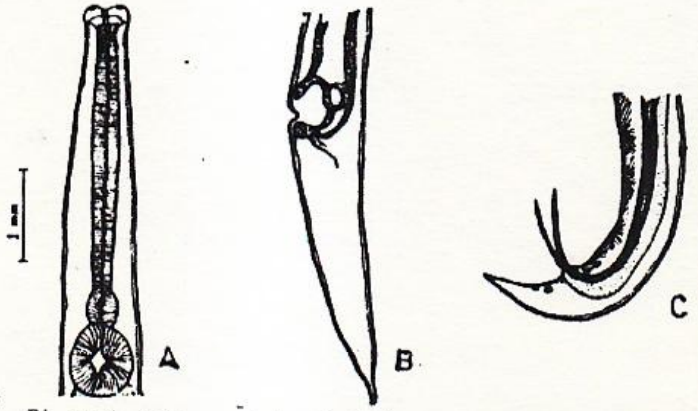


Figure 3. Atractis dactyluris. A.Female. B.Male.



[illegible]. A.Anterior end. B.Tail of female. [illegible].



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