

FIRST RECORD OF FIVE NEMATODE SPECIES IN SOME WATER BIRDS FROM AL-HAMMAR MARSH, SOUTH OF IRAQ

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ABSTRACT

Parasitological investigation of piscivorous birds in Al-Hammar marsh south of Iraq during December-February 2004 and December 2005 were revealed that water birds infected with five nematode species, which belong to three different superfamilies, *Desmidocercella numidica* (Seurat, 1920) (Superfamily: Aprocotoidea) from three piscivorous birds including Grey heron *Ardea cinerea*, Bittern *Botaurus stellaris*, and small white heron *Ardeola ralloides*; *Avioseipens* sp. 1 and *Avioseipens* sp. 2 (Superfamily: Dracunculoidea) from small bittern *Ixobrychus minutus* and black glossy ibis *Plegadis falcinellus* respectively; *Baruscapillaria* sp. and *Baruscapillaria* gen. sp. (Superfamily: Trichinellida) from Grey heron and Little egret *Egretta gazetta* respectively. All these parasites were described and recorded for the first time in Iraq, furthermore Aprocotoidea and Dracunculoidea were recorded for the first time in Iraq.

INTRODUCTION

Aprocotoid nematodes genus *Desmidocercella* Cram, 1927 parasites of piscivorous birds and used aquatic invertebrates and freshwater fishes as intermediate and transport hosts respectively in their life cycle (Baruset *al.*, 1978), Dracunculoid nematode *Avioseipens* Wehr et Chitwood, 1934 mature in subcutaneous tissues and body cavity of water birds in Eurasia and North America (Moravec, 2006a), and the thread-like nematode *Baruscapillaria* Moravec, 1982 parasite of birds and mammals in different parts of the world (Moravec, 1982).

In Iraq no works carried out related to the members of Aprocotoidea and Dracunculoidea and very few works on Trichinellida that constricted with the genus *Capillaria* Zeder, 1800 parasitized in water birds from mid country (Al-Aloosi, 1985 and Mhaisen and Abul-Eis, 1992), and Basrah water bodies (Abdullah, 1988; Al-Hadithi and Mustafa 1991 and Al-Darajiet *al.*, 1998). Because of no study related to the helminths parasite of water birds in restored Southern marshes in Iraq, this study designed for this purpose.

MATERIALS AND METHODS

Six water birds including 12 Grey heron *Ardea cinerea*; 7 Bittern *Botaurus stellaris*, 7 Little egret *Egretta gazetta*, 5 small white heron *Ardeola ralloides*, 5 black glossy ibis *Plegadis falcinellus* and 2 small bittern *Ixobrychus minutus* were collected from two stations in the Al-Hammar marsh, East Al-Hammar (30° 40' N 47° 33' E) North of Basrah province and West Al-Hammar (30° 51' N and 40° 46' E) near Suq Al-Shuyukh North ThiQar province during December-February 2004 and December 2005. All bird species were collected from West Al-Hammar station except Grey heron that collected from East Hammar station. Birds were shot by gun and preserved separately in plastic bags with crush of ice until arrived to the laboratory for immediate examination for parasites or live birds captured and transferred to the laboratory then killed and dissected searching for parasites. Birds identification followed

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Allouse (1960) and Porter *et al.*(1996), nematodes which were collected from dissected birds were fixed in hot 4 % formaldehyde and preserved in 70 % ethanol, for examination they cleared in glycerin. Drawings were made with aid of a camera lucida fixed on compound microscope type Yaseen. The specimens deposited in the collection of department of fisheries and marine resources, College of Agriculture, Basrahuniversity. All measurements were in micrometres unless otherwise stated.

RESULTS

Five nematodes species were recorded from six water birds, the parasites and their site of infection in each host were explained in table (1).

Table (1): distribution of parasitic nematodes according to hosts and site of infection

Parasite	Host	Site of infection
<i>Desmidocercella numidica</i>	<i>Ardea cinerea</i>	Esophagus, trachea
	<i>Botaurus stellaris</i>	Air sac
	<i>Ardeola ralloides</i>	Body cavity
<i>Avioserpens</i> sp. 1	<i>Ixobrychus minutus</i>	Trachea
<i>Avioserpens</i> sp. 2	<i>Plegadis falcinellus</i>	Esophagus
<i>Baruscapillaria</i> sp.	<i>Ardea cinerea</i>	Mid intestine
Baruscapillarinae gen. sp.	<i>Egretta gazetta</i>	Cloaca

Bellow the description of each species which were recorded in the present study:

1-*Desmidocercella numidica* (Seurat, 1920) Figure 1-2

General description (20 specimens)

Small nematode, finely striated cuticle, blunt anterior end have number of cephalic papillae, vestibule short and slender, esophagus divided into short muscular part and relatively long glandular part, brown to black in colour, which distinguished from other part of body (figure 1-1), nerve ring situated in posterior third of muscular parts (figure 2-1), excretory pore in the first third of glandular esophagus (Fig. 2-2). Vulva situated at esophagus- intestine junction level (fig. 2-1), the esophagus opened in intestine by short valve, anterior testis reach close to valve level (fig. 1-1), posterior end of both sexes rounded and the tail was short and curved ventrally (fig. 2-3 and 2-4), that heavily in the males (fig. 2-2), anus was protruded (fig. 2).

Male (10 specimens)

Body length 3339-4644 (4133), maximum width 126-198 (172) in midbody, width of body 61-81 (68) at nerve ring level, and 74-90 (82) at cloaca level, nerve ring and excretory pore 115-137 (124) and 160-306 (207) respectively from anterior end, vestibule 20-27 (24) in length and 7-11 (9) in width, muscular esophagus 94-151 (124) in length and 18-34 (25) in width, glandular esophagus 369-459 (387) in length and 40-72 (55) in width, ratio of

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muscular esophagus to glandular esophagus 1:2.5-3.6 (1:3.1), whole esophagus length represented 10.9-13.2 (12.2) % from body length, valve 11-13 (12) in length and 30-39 (34) in width, spicules dissimilar and unequal (fig. 1-2), longer spicule (right) slender with pointed sharp distal end, shorter spicule (left) twisted with ventrally curved distal end. Length of right spicule 207-416 (355) about 6.2-10.8 % from body length, left spicule 110-160 (135) in length about 2.9-4.2 % from body length, ratio of spicules 1:1.9-3 (2.5) %. Tail length 56-72 (66) and has single sessile subventral pair postcloacal papilla situated below cloaca.

Female (10 specimens)

Body length 4370-5562 (5138), maximum width 144-245 (204) in midbody, width of body 48-94 (76) at nerve ring level, 144-189(158) at vulva level and 54-81 (75) at anus level, nerve ring and excretory pore 85-144(120) and 180-220(199) respectively from anterior end, vestibule 18-27 (22) in length and 7-12(9) in width, muscular esophagus 119-189 (143) in length and 25-36 (30) in width, glandular esophagus 360-427 (401) in length and 56-63 (60) in width, ratio of muscular esophagus to glandular esophagus 1:2.5-6.4 (1:3.3), whole esophagus length represented 9.4-11 (10.2) % from body length, valve 11-14 (12) in length and 27-40 (35) in width, vulva was protruded in anterior half of body (prequatorial) 414-792 (603) from body length, vagina muscular 362-882 (621), uterus empty from the eggs, tail 40-117 (81) in length.

2-*Avioserpens* sp. 1

General description (fig. 3)

Small nematode with rounded anterior extremity without peribuccal sclerotized ring, esophagus consist of two parts (very short muscular and long glandular parts), the anterior of the latter part was swollen, gubernaculum, a few post cloacal papillae were present.

Male (one specimen) Fig. 3-1

Total length 8043, maximum width 152 in posterior quarter of the body, excretory canal very clear and situated exactly anterior to the swollen part of glandular esophagus and opened by excretory pore about 48 from anterior extremity, muscular esophagus 180 in length and 63 in width, length of swollen portion of esophagus 216, nerve ring 342 from anterior extremity, glandular esophagus 1170 in length and 90 in the width. Total esophagus 1278 about 15.9% from body length, the tail conical tapering toward distal part, turned ventrally and has nodular appendage at its tip. Spicules was dark red in colour, well sclerotized, similar and equal, 441 in length proximal end was broad and the distal end was pointed, gubernaculum present well sclerotized pin in form 35 in length, postcloacal papillae four large pairs, the first, second and the last pairs lateral while the third was subdorsal, the first and the second behind the cloacal opening, the third in mid tail and the last one close to tail tip.

3- *Avioserpens* sp. 2

Male (one specimen) Fig. 3-2 and 3-3

Total length 7478, maximum width 141 in posterior quarter of the body, six large cell nuclei situated anterior part of muscular esophagus, muscular esophagus 128 in length and 40 in maximum width, swollen part of esophagus 435, glandular esophagus 1799 in length and 100 in width, total esophagus 1927 about 25.7 % from body length, tail conical tapering toward distal end ventrally curved 225 in length, spicules 357 with blunt proximal end and pointed distal end, gubernaculum well sclerotized with striped proximal end and pointed distal end 128 in length, postcloacal papillae five pairs in different size, first one close to the cloaca, 2-4 pairs close to each other conforming triangle appearance, the last pair posterior to the previous pairs. Single pair of phasmid close to the tip of the tail.

4- *Baruscapillaria* sp.

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General description (10 females and two posterior parts of males)

Thread like nematode with narrow and rounded anterior extremity, esophagus in two parts, anterior one narrow and long and expanded posteriorly, nerve ring in the first third of the esophagus, posterior part of the esophagus (schistosome) consist of a single row of cells (schistocytes), schistocytes was long and externally segmented into a number of annuli, each schistocyte has a giant nucleus in mid of it, two oval gland cell are situated in esophagus intestine junction. Cloaca and anus were subterminal.

Male (posterior part of two specimens) Fig. 4

Posterior part of body 964 and 2628 for first and second specimens respectively, maximum width 30-34 (32) in posterior part of esophagus, schistocytes five and 30 in the number respectively, 90-144 (117) in length and 22-23 (22) in width, spicule well sclerotized, smooth 522-587(554) in length, proximal end bifurcated, width of spicule 7.8-9 (8.4), 4.1-4.5 (4.3) and 3.4-3.9 (3.6) at proximal, middle and distal parts respectively. Posterior end of body was rounded and has short bursa 9 in length and 14-16 (15) in width, also has big pair of papilla that not reach to the posterior terminal of bursa. Spicular sheath smooth 124 in length and 8-9 (8) in width.

Female (10 specimens) Fig. 4

Body length 4761-6848 (5960), maximum width 41-45 (44) in third quarter of the body, muscular esophagus 171-306(237) in length and 9 in width, schistosome 1944-2583 (2280) in length and 13-31 (24) in width and has 26-35 (30) schistocytes. Schistocytes 45-90 (63) in length and 11-27 (18) in width and consist of 7-13 (10) annuli, annuli 9-16 (13) in length and 7-9 (8) in width, nerve ring 34-63 (47) from anterior extremity, total esophagus 2115-2880 (2496) about 40.3-44.5 (41.6) % from body length. Rectum 38-67 (54), vulva elevated prequatorial about 40.5-48 (42.6) % from body length and 49-103 (78) from posterior end of the esophagus and has vulval appendage 2122-3006 (2557) in length and 16 in the width, matured eggs oval and thick-walled have plugs in each polar 43-46 (44)×20-22 (21).

5- Baruscapillarinae gen. sp.

Male (one specimen)

Body length 11413, maximum width 63 in mid body, muscular esophagus 459 in length and 15 in width, schistosome 3323 in length and 32-45 in width and has 34 schistocytes. Schistocytes 90-124 in length and 22-31 in width and consist of 8-16 (13) annuli, gland cells 20 in the length and 13 in the width, nerve ring 38 from anterior extremity, total esophagus 3682 about 32.5 % from body length, spicule well sclerotized, smooth 2124 in length about 18.6 % from body length, proximal end bifurcated (unequal in length), width of spicule 22.5 and 10.2 at proximal and distal parts respectively. Posterior end of body was rounded and bursa with two lobes. Papillae on bursa was not clear. Spicular sheath was wrinkled, 921 in length and 22 in width.

DISCUSSION

1- *D. numidica*

By having the nematode short body, compact two lips, presence of vestibule, divided esophagus, spicules unequal and dissimilar, vulva equatorially fall this nematode in the family Desmidocercidae Cram, 1927, short esophagus in compared to body length, presence of cloacal papillae and the tail of both sexes was without filiform papillae fall in genus *Desmidocercella* YorketMaplestone, 1926 (see Baruset *al.*, 1978).

According to Yamaguti (1961) the genus possess eight species three of them parasites of cormorants *Phalacrocorax* spp. the rest species were known from Ardeidae, two of them

found in Grey heron vis. *D. numidica* from Algeria and Volga Delta in the America and *D. lubimovi* Gschanskaja, 1954 from Russia, but Chabaud (1957) confirmed that the latter species was synonym of type species. Baruset *et al.* (1978) reproved the latter opinion by consider the genus have four species only. Moravec *et al.* (1988) redescribed *D. Incognita* Solonitsin, 1932 from air sacs of cormorant *P. carbo* in past Czechoslovakia, Vicenti *et al.* (1995) recorded *D. ardeae* (Nawrotzky, 1914) from body cavity of heron *Ardea cocoi* in Brazil, Pinto *et al.* (2004) found the latter species from buccal cavity of Greet white heron in west-central of Brazil. Nogueserola *et al.* (2002) recorded present species from air sacs of three species of herons in Spain.

It is clear that the previous record of *Desmidocercella* in two water birds families both mainly piscivorous birds, hence the probably of the fish considered as transport host for this nematode, Baruset *et al.* (1978) found from literature review that the larva of type species (*D. numidica*) infected eyes of many freshwater fishes in the wild environment, and fish infected with these larva have been fed to grey heron passed successfully to matured in stomach of Grey heron. Moravec (1994) showed the description of third and fourth larval stage of this species that infected eyes of freshwater fishes in Europe and recorded from Asia, Africa and North America. Valtonen *et al.* (2001) recorded larval stage of unidentified species from fresh water fish *Lota lota* in the northeastern Baltic Sea and they considered this parasite allogenic parasite which it used the fishes as intermediate host and the bird and mammals as final hosts and have the chance of wide distribution to new places.

Our materials have morphological criteria agree with that of the same species in Barus *et al.* (1978) except the present females relatively small, probably they are non gravid (uterus was empty from the eggs) hence we return them to this species.

From above this species was not done recorded or described in Iraq, furthermore the superfamily Aprotoidea was recorded new to the fauna of Iraq. The water birds Grey heron, squacco heron and little egret were new hosts record in Iraq.

2- *Avioserpens* sp. 1

By having present material filarid body with esophagus divided into short muscular part and very long glandular one, the latter has swollen anterior portion, nerve ring encircling glandular esophagus behind swollen portion put it in the family Dracunculidae Stiles, 1907, by absence of peribuccal ring and parasite of bird fall it in genus *Avioserpens* Wehr *et* Chitwood, 1934 (See Moravec, 2006a). So this genus has many species which were inadequate in their description, hence led Moravec (2006a) to reduce its species to four.

Present species shared with *A. denticulophasma* Wehr *et* Chitwood, 1934 and *A. galliardi* Chabaud *et* Campana, 1949 in final host (family Areidae), but differ from the first one in geographic distribution in the new world instead of old world, *Avioserpens* sp.1 similar to *A. galliardi* in length of spicules, but our species has short and un-rod gubernaculum and four post cloacal papillae. The presence of nodular appendage on tail tip in our species did not found in any species of *Avioserpens* except that found in matured females of *A. taiwana* (Sugimoto, 1919), but the latter species parasitized of another family (Anatidae). Nogueserola *et al.* (2002) recorded *A. galliardi* from esophagus of purple heron, little egret, night heron and small bittern in Spain. The third larval stage was recorded from body cavity of many freshwater fish in Europe and these fishes considered transport host to the parasite (Moravec, 1994).

Moravec (1994) reviewed the life cycle of *A. galliardi* in Europe that contained many copepod species as intermediate host which swallow the first larval stage of parasite found in the faeces of infected final host, the larvae was developed to the third larval stage in copepod, these larvae have infected both transport host such as dragonflies or fishes and final hosts (water birds), if these hosts swallowed them. The third larval stage of these nematode

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recorded in fishes was very minute about 0.39-0.48 mm, which get explanation why did not recorded these nematodes from freshwater fishes in Iraq yet.

According to above details our species distinct from all species of the genus and may be new species, but consolidation this idea depending on availability of other specimens including females.

3- *Avioseerpens* sp. 2

Present species differ from *A. taiwana* by length of spicules (357 in compared to 185-218 in *A. taiwana*), shape and length of gubernaculum (pini shaped 128 in compared by ploughshare- shaped and 35-78 in the latter) and in the final host (Thereskiornithidae in compared with Areidae in the latter) and in presence of postcloacal papillae in compared with lacking it in the latter.

Present species differ from *A. galliardi* by the length of spicules (357 in compared with 380-450) shape and length of gubernaculum (pin shape with stripped proximal end and 128 in compared with smooth of proximal end and 110-115) and presence of cloacal papillae in compared with lacking them and in final host (Thereskiornithidae in compared with Areidae, Anatidae and Gavidae).

Our species differ from *A. denticulophasma* in geographical distribution and final host in compared with the latter restricted in Areidae and Anatidae in South America). Our species differ from *A. mosgovoyi*Supryaga, 1965 by length of spicules (357 in compared with 165-190) and shape and length of gubernaculum (pin shape and 128 in length in compared with cuneiform with many spines and 80-108 in length), number and arrangement of post cloacal papillae (five lateral pairs not series in compared to three subventral series postcloacal with pair adanal papilla, tail tip (smooth tip in compared with three spines on tip) and final host (Thereskiornithidae in compared to Anatidae, Gavidae and Podicipidae). *Avioseerpens* sp. 2 differs from *Avioseerpens* sp.1 of present study by arrangement of cloacal papillae and in the final host.

According to above details and information until 2006 it no recorded any species of *Avioseerpens* from Thereskiornithidae in the world, and so unavailability the females and the presence of a single male let us reservation it as new species description in the present time. This is the first record of the parasite in Iraq at least and black Glossy Ibis *P. falcinellus* consider as a new host record in the world.

4- *Baruscapillaria* sp.

Most researchers including Yamaguti (1961) were consider the family Capillaridae had one genus *Capillaria*Zeder, 1800 with more than 300 species with great variations and parasitic in all vertebrates. That confusion encourage some parasitologists to essential make a new genera for those species, some attempts from Brazilians and Russians during 1959 until 1966 resulting on arrangement of the species on ten genera, but validity of those genera based on un suitable morphological criteria hence many species may fall in previous described genera (Moravec, 1982).

Moravec (1982) was made revision of Capillaridae, designed new systematic style and established 16 genera including two new genera, which agree with some previous researchers when he had gave important value to the caudal end of male for distinguished different genera were not described adequately in previous studies, led difficult to transferred many species to right genus, also added new taxonomic characteristics and left others had been used previously.

The birds were consider final host to eight genera of nematode belong to Capillaridae, from these only four genera had smooth spicule's sheath, *Aonotheca* Lopez-Neyre, 1947, *Baruscapillaria* Moravec, 1982, *Ornithocapillaria* Barus et Sergeeva, 1990 and *Pseudocapillaria* Freitas, 1959. *Aonotheca* had caudal alae, poor sclerotized spicule and

presence of elongated lobular projections in the tail in compared to *Baruscapillaria* had not caudal alae, well sclerotized spicule and absence of lobular projections in the tail, *Ornithocapillaria* very similar to *Baruscapillaria*, but the former one had complex bursa in compared to simple one in the latter. *Pseudocapillaria* had not bursa in the male.

Our materials agree in morphology and measurement of the genus *Baruscapillaria*, tentatively this genus possess 23 species parasitic in intestine and stomach of the birds and mammals (Moravec, 1982), Barus and Sergeeva (1990a) transferred two species of *Baruscapillaria* to genus *Ornithocapillaria*, Barus and Sergeeva (1990b) made revision of *Baruscapillaria* and reduced its species to 13 valid species. Moravec *et al.* (1994) verified the validity of *B. carbonis* (Rd., 1819) and changed the authority and described new species *B. rudolphi* from cormorant *P. carbo*, then Frantova (2001) designed keys to capillarid nematodes parasite cormorant including redescribed *B. carbonis* (Dobinin *et Dobinina*, 1940).

Our specimen similar to *B. rudolphi* in shape of female's tail, shape of bursa in the male, but differ from it by body length, body width, ratio of esophagus length to body length, nerve ring distance to anterior extremity, number and measurement of schistocytes, shape of different parts of spicule and its length and in the final host (Ciconiformes in compared to Plecaniformes), according to our acknowledgment the only one species was known from Ardeidae *B. herodiae* (Boyd, 1966) described from *Ardea herodias* in North America, but its length about 115.3 mm for male and 8.3 mm for female, the female have not vulval appendage.

Previous record for Capillaridae from the birds in Iraq were limited to the genus *Capillaria*, Al-Aloosi (1985) isolated *C. contorta* (Creplin, 1819) and *C. laricola* (Vasilkova, 1930) from *Larus ridibundus* from mid of the country, however now the latter species was synonym of the former (Barus *et al.*, 1978). Abdullah (1988) and Al-Hadithi and Mustafa (1991) were recorded female of *Capillaria* sp. from *Fulica atra* in the Zijri marsh North-West of Basrah province and from *L. ridibundus* in Shatt Al-Arab river respectively, Mhaisen and Abul-Eis (1992) found *C. contorta* from *L. ichthyaetus*, *L. genei* and *Chettusia leucura* in Babylon fish farm in mid of country, Al-Darajiet *et al.* (1998) was recorded *Thominix contorta* (Creplin, 1839) from *L. canus* in the Bond North of Basrah, however the genus *Thominix* Diujadin, 1845 was considered synonym of *Capillaria* (Moravec, 1982 and Moravec, 2006b).

According to the above details the description and recording this parasite was the first in Iraq.

5- Baruscapillarinae gen. sp.

Barus and Sergeeva (1990a) erect the genus *Ornithocapillaria* by possessed four species in that time, two of them transferred from *Baruscapillaria* and one from *Pseudocapillaria*. Moravec *et al.* (2000) added three species including two species transferred from *Baruscapillaria* and one species from *Capillaria*.

Our specimen impossible confinement generic status so morphological characters between *Baruscapillaria* and *Ornithocapillaria* depending mainly on lobed structure of caudal end in male, in case of presence of two ventrolateral lobes in caudal end and presence of vulval appendage in the female agree with *Ornithocapillaria*, and because caudal details not clear especially ventral view in our single specimen (illustrations was appeared the dorsal and lateral views only) and unavailability of female prevent us for made the generic status of the specimen, although our specimen have morphological characters similar to that of *B. rudolphi*, but differ from it by situation of nerve ring, shape of proximal end of spicule. However our species may be *Ornithocapillaria* if take into account the specialization in site of infection (cloaca), as *O. phalacrocoraxi* (Borgarenko, 1875) was recorded from cloaca of pygmy cormorant in Tachekistan (Moravec *et al.*, 2000), as well as relatively advanced of bursa in lateral view.

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According to above details the description and record of the present nematode species considered at least the first in Iraq, also little egret consider as a new host record.

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First Record of Five Nematode Species

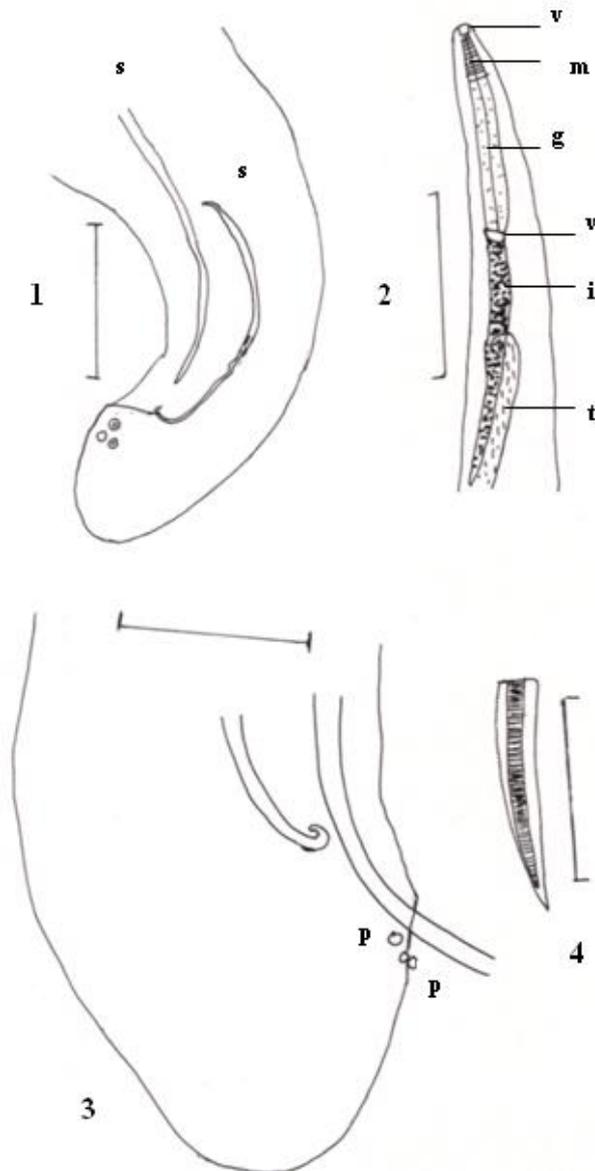
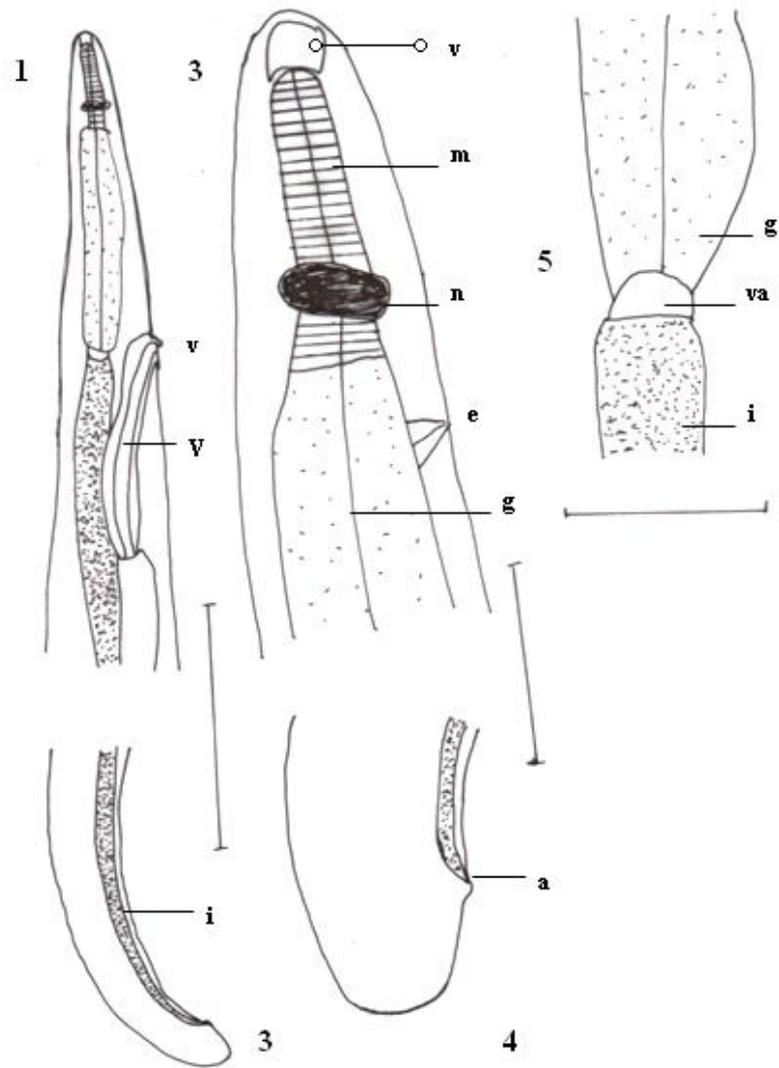
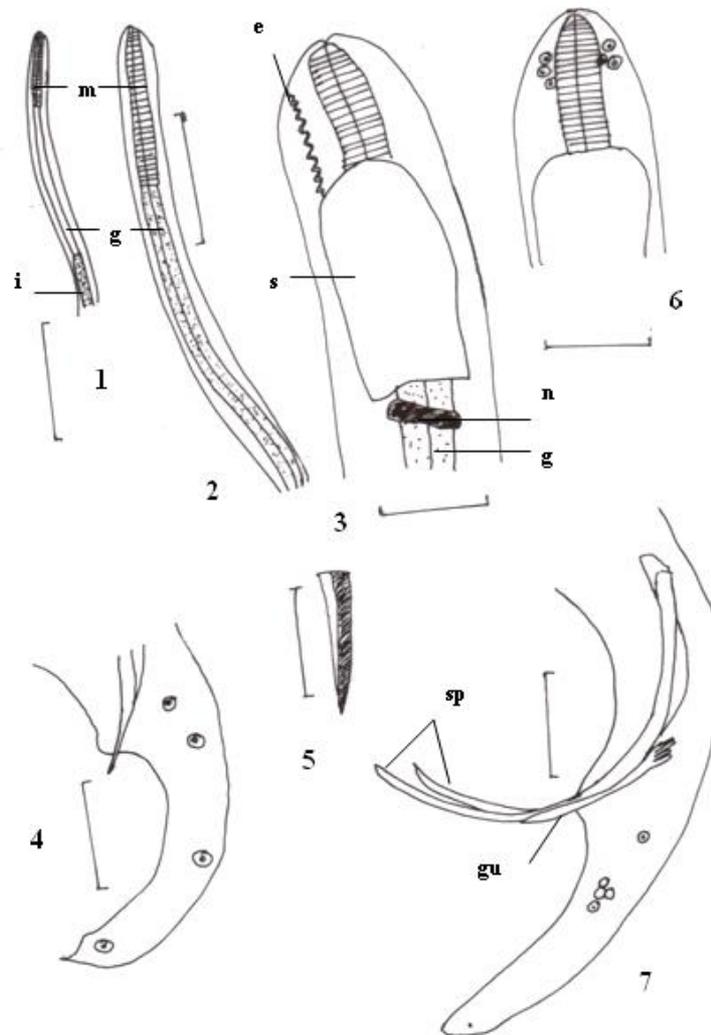


Figure (1): male of nematode *Desmidocercellanumidica*
 (1) anterior part, Abr. muscular esophagus (m), glandular esophagus (g), intestine (i), anterior testis (t), (2-3) posterior end of different specimens, Abr. spicule (s), postcloacal papilla (p), (4) distal end of long spicule, scale bar (1)= 1mm, (2)=450 μ m, (3)= 90 μ m, (4)= 45 μ m.



Figure(2): Female of *Desmidocercellanumidica* (1-2) anterior part, (3-4) posterior end, (5) esophagus-intestine junction, anus(a), excretory pore(e), glandular esophagus (g), intestine(i), muscular esophagus (m), nerve ring(n), vulva(v), vagina (V), vestibule (ve). scale bar: (1,3)=450μm, (2,4,5)=90 μm.

First Record of Five Nematode Species



Figure(3): *Avioserpens* sp.1 (1-3) anterior part, Abr. muscular esophagus(m), glandular esophagus(g), swollen part of glandular esophagus(s),excretory pore(e) (4) posterior part (5) distal end of spicule (6) *Avioserpens* sp. 2: anterior part (7) the same posterior part, Abr. spicules (sp), gubernaculum(gu), scale bar: (1)= 1mm, (2)=450 μ m, (3,4,6,7)= 90 μ m, (5)=45 μ m.

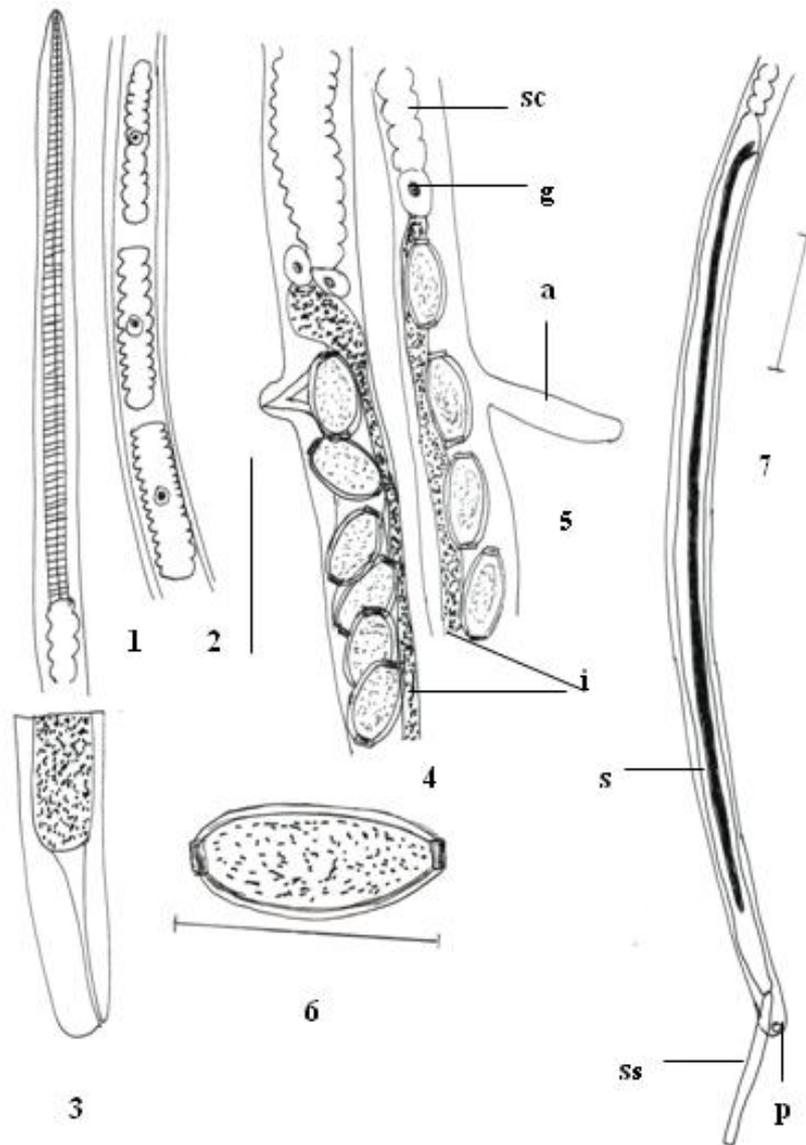


Figure (4): *Baruscapillaria* sp. (1) anterior part of the female (2) schistosomes of female, (3) posterior end of female, (4-5): vulva region in the female, Abr. schistosomes (sc), gland cell(g), vulvalur appendage (a),intestine (i), (6) the egg, (7) posterior part of the male, Abr. papilla (p), spicule(s), spicular sheath(ss), scale bar: (1-5 and 7)= 90µm, (6)=45 µm.

First Record of Five Nematode Species

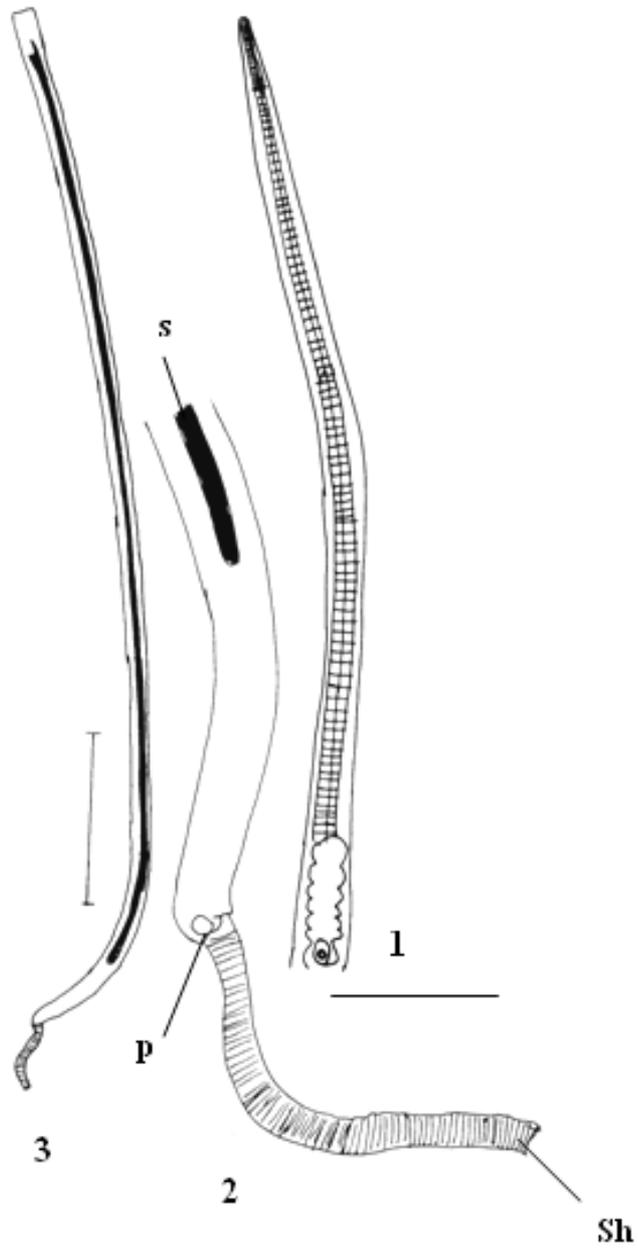


Figure (5): *Baruscapillaria* gen. sp. male (1) anterior part, (2) posterior part, Abr. papilla(p), (3) posterior end, Abr. spicule(s), spicular sheath(ss), scale bar: (1-2)=90 μ m, (3)= 45 μ m.

تسجيل أول لخمسة أنواع من الديدان الخيطية في بعض الطيور المائية من هور الحمار جنوب العراق

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الخلاصة

أثناء الدراسة الطفيلية للطيور الأكلة للأسماك في هور الحمار جنوب العراق خلال الفترة الممتدة من كانون الأول حتى شباط ٢٠٠٤ و في كانون الثاني ٢٠٠٥ أظهرت الطيور المائية إصابتها بخمسة أنواع من الديدان الخيطية تعود الى ثلاثة فوق عوائل مختلفة (*Desmidozercellanumidica* (Seurat, 1920) (فوق العائلة Aprotoidea) من ثلاثة أنواع من الطيور الأكلة للأسماك تضمنت مالك الحزين الرمادي *Ardeacinerea* والواق *Botaurusstellaris* والواق الابيض الصغير *Ardeolaralloides*؛ الدودة الخيطية *Avioserpens* sp.1 و الدودة الخيطية *Avioserpens* sp.2 (فوق العائلة Dracunculoidea) من الواق الصغير *Ixobrychusminutus* و ابو منجل الاسود *Plegadisfalcinellus* على التوالي. الدودة الخيطية *Baruscapillaria* sp. و الدودة الخيطية *Baruscapillaria* gen. sp. (فوق العائلة Trichinellida) من مالك الحزين الرمادي والبيوضي الصغير على التوالي. جميع الطفيليات توصف وتسجل لأول مرة في العراق، فضلاً عن إن فوق العائلة Aprotoidea وفوق العائلة Dracunculoidea تسجلان لأول مرة في العراق.