

قسم : علم الحيوان - كلية العلوم - جامعة أسيوط.
رئيس القسم: أ.د / محمد خليل النصار

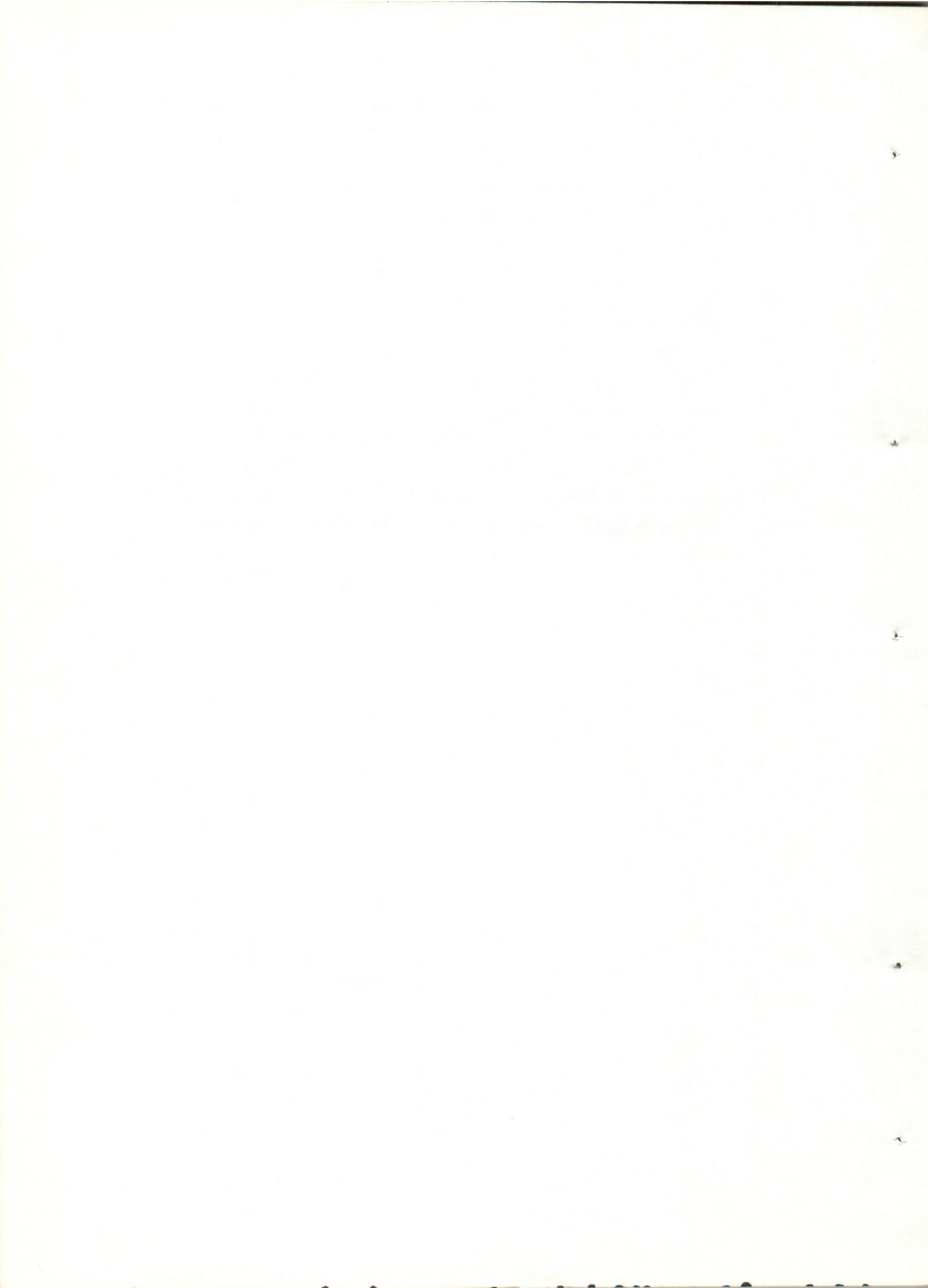
حصر الديدان الطفيلية التي تصيب بعض الأسماك بحيرة
ناصر بأسوان ، جمهورية مصر العربية

محمد خليل ، فتحى سعود ، اسماعيل حسين

- تم حصر الطفيليات التابعة لديدان التريما تودا ، الديدان الشريطية ، الرأسشوكية الى
جانبا دراسة مورقولوجية تفصيلية لبعض الديدان التي تم الحصول عليها من مناطق مختلفة
بحيرة ناصر بأسوان .

- تم دراسة الكثافة العددية ونسبة الاصابة بالديدان الطفيلية وقد تبين للباحثين أن كل
نوع معين من الأسماك يختص بنوع معين من الطفيليات أو مجموعة أنواع منها ، وقد يوجد النوع
الواحد من الطفيليات فى أكثر من نوع واحد من الأسماك .

- وصف الباحث نوعين جديدين من ديدان التريما تودا هما : استيوتريما لاريى ، اللوكريد يوم
اسواننمسز ، كما وصف نوعا واحدا جديدا من الديدان الشريطية هو مارسيوسيفاليس
ايجيتياكيس .



A GENERAL SURVEY OF THE HELMINTH PARASITES OF SOME FISHES FROM LAKE NASSER
AT ASSWAN, A.R. EGYPT
(With 7 Tables)

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(Received at 26/6/1982)

SUMMARY

The helminth parasites, were surveyed from some fishes of lake Nasser at Asswan. Out of fish examined, (55.88%) were found infected with one or more species of parasites. However, mixed infections were frequently met with. Every species of parasite may infest more than one species of hosts. Out of the fish examined, 8.51% were found harbouring trematode parasites, 4.65% harboured cestodes, 47.66% harboured nematodes, 10.52% harboured Acanthocephala. The highest incidence of infection with trematode parasites was found in *Tetraodon fahaka* (92%), the maximum incidence of cestode parasites was 65.71% in *Clarias anaguillaris*, the maximum incidence with nematode parasites was found in *Hydrocyon forskalli* and *H. lineatus* (95.2% & 94% respectively). The maximum incidence with the parasites followed to the Acanthocephala was 80% in *Lates niloticus*. The highest percentage of trematode parasites (24.93%) occurred in the intestine, all the cestodes and Acanthocephala were found only in the intestine; and the highest percentage of nematodes occurred in the muscles (59.55%) and fins (40.45%).

Out of the trematode surveyed, 5 species were briefly described, figured and discussed in details, two of which were found to be new species namely: *Astiotrema lazera* from the intestine of *Clarias lazera*, and *Allocreadium aswanensis* from the intestine of *Barbus bynni*.

Out of the cestode surveyed, 4 species were studied in details, one of which was found to be new namely; *Marsypocephalus aegyptiacus* from the intestine of *Clarias lazera*.

INTRODUCTION

Owing to the economical importance of lake Nasser in the production of fishes in Egypt, especially if we know that the problem of food constitute today the most dangerous one among the Human problems throughout the world, and due to the few investigations that had been carried out on the fish parasites in lake Nasser, consequently, the present studies were decided owing to throw the light on the helminth parasites which may infest the fishes at lake Nasser of Asswan.

MATERIAL and METHODS

The materials of the present study were captured from different parts of Lake Nasser at Asswan. The hosts which were examined for helminth parasites fall into thirty species belonging to twelve families. The systematic list is proposed according to BOULANGER (1907) and LATIF (1974).

The fish hosts which were captured during some research trips in lake Nasser were examined on the boat, and those caught from the area of the lake adjacent to the High Dam were examined in the Laboratory of fish biology (Research and Development Section-Asswan Regional Planning).

The fishes were examined for Parasites as soon as possible, and the examination was macroscopically and microscopically to detect any parasites which may infest the host. Then, the hosts were dissected. The parasites were directly removed, adequately washed in physiological saline solution. Then they were examined alive, before carrying the fixation, and the trematodes were allowed to relax for 30 minutes in iced saline solution. The cestodes were relaxed by chilling overnight.

The collected trematodes, cestodes and Acanthocephala were fixed in 10% formal saline or hot F.A.A. (Formaline acetic acid). They were stained in Acetic Acid Alum carmine and mounted in canada balsam.

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The nematode parasites were fixed in hot 70% alcohol and the suitable temperature was 60°C, after vigorous shaking with 0.9% saline solution. The parasites were kept in 70% alcohol containing 5% glycerine. For microscopic examination, the nematode was mounted on a slide with two drops of lactophenol and the parasite was then covered with a cover glass slide.

Measurements were taken from mounted specimens and all drawings were done by a camera lucida. The description and diagnosis is based, at least, on ten specimens except in few cases. All the measurements are in millimeters.

RESULTS

The incidence of helminth parasites in the fish examined:

Table (1) gives a summary of all fish examined during the present survey with helminth parasites encountered with them. The table included 4733 fish, belonging to 30 species, representing twelve families. Out of the total number examined, 2645 (55.88%) were found to harbour one or more species of parasites, 403 (8.51%) were found harbouring trematode parasites; 220 (4.65%) harboured cestodes; 2256 (47.66%) harboured nematodes; 428 (10.52%) harboured Acanthocephala. Mixed infection with two or three groups of helminth parasites were encountered. The infected fish belongs to 24 species.

From the same table, it appears that the highest incidence of infestation with trematodes was found in *Tetraodon fahaka* (92%). The maximum incidence of cestode parasites was 65.71% in *Clarias anguillaris*. The maximum incidence with nematode parasites was found in *Hydrocyon forskalii* and *H. lineatus* (95.2% and 94% respectively). The maximum incidence with the parasites followed to Acanthocephala was 80% in *Lates niloticus*. No helminth parasites was encountered in *Anguilla vulgaris*; *Mormyrus cashive*; *M. Kannume*; *Chrysichthys auratus*; *Chrysichthys ruppelli* and *Malopterurus electricus*.

Number and percentage of helminth parasites in infected fishes:

Table (2) shows that the highest number with trematode parasites was found in *Bagrus docmac* (40.20%), while the lowest incidence about 0.83% in *Clarias anguillaris*. In case of cestodes, the highest number was found in *Synodontis schall* (44.06%), while it is 8.91% in *Clarias anguillaris*. The highest number with nematode parasites was found in *Hydrocyon forskalii* (34.10%) and the lowest was 0.021% in *Clarias anguillaris*. In case of Acanthocephala, the maximum number was found in *Lates niloticus* (96.84%), while it was 2.32% in *Bagrus docmac*.

Table (3-6) show the relative incidence with parasites in different species of fish examined and the mean number of parasites per infested fish. In the trematodes, the highest incidence was found in *Tetraodon fahaka* infested with *Astiotrema impletum* (92%) and the mean number of parasites per infested fish was 14; while the lowest incidence was found in *Clarias lazera* infested with *Astiotrema lazeri* (2%), and *Orietocreadium lazeri* (2%), and the mean number of the parasite per infested fish was 5 and 2 respectively.

In case of cestodes, the highest incidence was found in *Clarias anguillaris* infested with *Proteocephalus sulcatus* (65.71%) and the mean number of parasites per infested fish was 8; while the lowest percentage was found in *Clarias lazera* infested with *Marsypocephalus aegyptiacus* (2%) and the mean number of parasites per infested fish was 4.

For nematodes, the highest incidence was found in *Hydrocyon forskalii* infested with *Philometroides hydrocyonae* (95.2%) and the mean number of parasites per infested fish was 17, while the lowest percentage was 1.3%, in *Lates niloticus* infested with *Philometroides* sp. and the mean number of parasites per infested fish was 4.

In case of Acanthocephala, the highest incidence was found in *Lates niloticus* infested with *Tenuisentis niloticus* (80%) and the mean number of parasites was 12, while the lowest percentage was 17.5 in *Bagrus docmac* infested with *Neoechinorhynchus* sp. and the mean number of parasites per infested fish was 3.

The same tables indicate that every species of parasite may infest more than one species of fish hosts. In case of parasitic trematodes, each of *Acanthostomum spiniceps* and *A. absconditum* was found in both *Bagrus bayed* and *B. docmac*; *Nematobothrium labeonis* was found in *Labeo niloticus*, *L. horie* and *Labeo coubi*; *Pristotrema clarii*

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was found in *Clarias lazera* and *Clarias anguillaris*.

In case of parasitic Cestodes, *Proteocephalus sulcatus* was found in *Clarias lazera* and *Clarias anguillaris*. *Wenyonia virilis* was found in *Synodontis schall* and *S.serratus*.

In case of Acanthocephala, *Acanthosentis tilapi* was found in *Tilapia niltica* and *T.galilaea*.

A single host may harbour more than one species, each of *Bagrus bayad* and *B.docmac* harbours two trematode parasites viz: *Acanthostomum spinceps* and *A.absoconditum*; and *Bagrus bayad* harbours two nematodes viz: *Thiwatia bagri* and *Amplicaeum* sp.; *Clarias lazera* harbours three trematode parasites viz: *Astiotrema lazeri*, *Orientocreadium lazeri* and *Pristotrema clarii*, and two cestode parasites viz: *Proteocephalus sulcatus* and *Marsypocephalus aegyptiacus*; *Barbus bynni* harbours two trematode parasites: *Allocreadium aswanensis* and *A.bynni* and two cestode parasites viz: *Caryophylleus laticeps* and *Bothriocephalus barbus*; *Lates niloticus* harbours three nematodes: *Dichelyne fossor*, *Philometroides* sp., and *Amplicaeum* sp. Each of *Hydrocyon forskalii*, *H.lineatus* and *H.brevis* harbours three nematode parasites: *Philometroides hydrocyonae*, *Rhabdochona aegyptiacus* and *Amplicaeum* sp.

Distribution of helminth parasites in the infected fishes:

On dealing with the habitat of the parasites in different region in their hosts, table (7) shows that the highest percentage (92.93%) of trematode parasites occurred in the intestine, while the lowest was 7.06% in the orbital cavity of the eye. All the cestodes and Acanthocephala were found only in the intestine (100%). On regarding the nematodes, the highest percentage (59.55%) occurred in the muscles, followed by 40.54% occurred in the fins.

Discussion:

The results of the present study reveals that the incidence of infection is varied widely from one host to the other, some host species showed a high incidence with helminth parasites, while the others show a very low incidence (Table 1). Such results are coincide with that reported by EL-NAFFAR (1970).

The results indicate the absence of any helminth parasites in *Anguilla vulgaris*, *Mormyrus caschive*, *M.kannume*, *Chrysichthys auratus*, *C.ruppelli* and *Malopterurus electricus*, in contrast with the results of EL-NAFFAR (1970) which reported that *Anguilla vulgaris* was infected with trematode and nematode parasites; *Chrysichthys auratus* and *Malopterurus electricus* were infected with trematode parasites only.

Table (2) shows that *Hydrocyon forskalii* was infected with nematode parasites only. The fish *Labeo niloticus* and *Tetraodon fahaka* were infected with trematode parasites only. Such results are coincide with that reported by EL-NAFFAR, (1970).

The same table indicates that *Barbus bynni* and *Clarias lazera* were infected with trematode, cestode and nematode parasites. These results are coincide with that obtained by EL-NAFFAR, (1970) for the *Barbus bynni* only, but in contrast with him for *Clarias lazera*, he reported that *Clarias lazera* was infected with trematode and nematode parasites only. *Synodontis schall* harbours cestode and nematode parasites only while that obtained by EL-NAFFAR, (1970), the same fish harboured trematode, cestode and nematode parasites.

Table (7) shows that the nematode parasites were found mainly in the muscles and fins, in contrast with the results obtained by EL-NAFFAR, (1970), who reported that the highest number of nematodes was found in the intestine.

REFERENCES

- Amin, O.M. (1978): Intestinal helminths of some Nile fishes near Cairo, Egypt with description of *Camallanus kirandensis* Baylis, 1928 (Nematode) and *Bothriocephalus aegyptiacus* Rysavy and Moravec, 1975 (Cestoda), J. Parasit., 64 (1), 93-101.
- Beverley, B.M. (1962): Some trematodes from *Clarias* spp. in the Rhodesias, including, *Allocreadium mazoensis* n. sp. and comments on the species of the genus *Orientocreadium* Tubanguí, 1931. Proc. Helm. Soc. wash. 29 (2): 103-115.

- Boulenger, G.A. (1907): Zoology of Egypt. The fishes of the Nile, Publ. for the Egyptian Government by Hugh Ress, London.
- El-Naffar, M.K. (1970): Studies on the parasites of Nile fishes in Assiut Province of Egypt. Ph.D. Thesis, Assiut University, Assiut, A.R. Egypt.
- (1980): Studies on Heterophyid cercariae from Assiut Province, Egypt. The life cycle of *Haplorchioides cahirinus* (Looss, 1896). J. Egypt. soc. parasit. Vol. 10 (1), 117-126.
- and Saoud, M.F.A. (1974): *Rhabdochona aegyptiacus* n.sp. (Nematoda: Rhabdochoniidae) from some fresh water fishes of the River Nile at Assiut, Egypt. Bull. Zool. Soc. Egypt. 26, 45-49.
- Fahmy, M.A.; Mandour, A.M. and El-Naffar, M.K. (1976): On some cestodes of the fresh water fishes in Assiut Province, Egypt. Vet. Med. J. Vol. 24, p. 253-262.
- Fischthal, J.H. and Kuntz, R.E. (1963): Trematode parasites of fishes from Egypt, part VIII. *Orientocreadium batrachoides* Tubangui, 1931 (Plagiorchoidea) from *Clarias lazera* with special revision of the genus and related forms. J. Parasitol. 49 (3), 451-464.
- Grabda, K.B. (1959): *Astiotrema trituri* sp.n. (Trematoda: Plagiorchiidae) from the small intestine of *Triturus vulgaris*. Bull. Acad. Polon. Sci. II- Sex. Sci. Biod., 7, 17-21.
- Gupta, S.P. (1963): On two new trematodes (Family: Allocreadidae, Stossich, 1903) from the intestine of fresh water fishes of Banaras, Uttar Pradesh. Proc. Helminth. Soc. Wash. 30 (1), 96-100.
- Khalifa, R.; El-Naffar, M.K. and Arafa, M.S. (1977): Studies on Heterophid cercariae from Assiut Province, Egypt. I. Notes on the life cycle of *Haplorchis pumilio* (Looss, 1896) with a discussion on previously described species. Acta. Parasitologica. Polonica, Vol. XXV, 25-38.
- Khalifa, R.; El-Naffar, M.K. and Sakla, A.A. (inpress): On two cynodiplostomatid parasites (Diplostomidae: Trematoda) with description of their metacercariae. Assiut Medical Journal.
- Khalil, L.F. (1959): On a new trematode, *Astiotrema sudanensis* n.sp. from a freshwater turtle in the Sudan. J. Helm. 33 (4), 263-266.
- (1961 a): On a new trematode, *Orientocreadium lazera* sp.nov., from a freshwater fish; *Clarias lazera* in the Sudan. J. Helm. 35 (3/4), 259-262.
- (1963): *Acanthostomum gymnarchi* (Dollfus, 1950), with notes on the genera, *Acanthostomum* Looss, 1900; *Atrophocaecum* Bhalerao, 1940; *Gymnotrema* Morasov, 1955 & *Haplocaecum* Simha, 1958. J. Helm., 37 (3), 207-214.
- (1964): *Cithariniella citharini* n.gen., n.sp. (Nematoda), an oxyurid from freshwater fish *Citharinus citharus* in the Sudan. J. Helm. 38 (1/2), 41-46.
- (1965): On a new Philometroid nematode, *Thwaitia bagri* n.sp. from freshwater fishes in Sudan. J. Helm. 39 (4), 309-312.
- (1969): Studies on the helminth parasites of freshwater fishes of the Sudan. J. Zool. Lond., 158, 143-170.
- Latif, A.F.A. (1974): Fisheries of Lake Nasser. Asswan Regional planning, Lake Nasser Development Center.
- McClelland, W.F. (1955): *Nematobothrium labeonis* n.sp. a member of the family Didymozoidae (Trematoda) from freshwater fish. J. Helm. 29, 55-64.
- Pande, B.P. (1938): On two trematodes from Indian Cyprinoid fishes with remarks on the genus *Allocreadium* Looss. Proc. Nat. Acad. Sci. India, 4, 100-110.
- Rai, S.L. (1962): Studies on three new species of the genus *Allocreadium* Looss, 1900, from the intestine of *Barbus tor*. parasit. Vol. 52 (1), 23-30.
- Rysavy, B. and Moravec, F. (1975): *Bothriocephalus aegyptiacus* sp.n. (Cestoda: Pseudophyllidae) from *Barbus bynni* and its life cycle. Vest. Cs. Spol. Zool., Vol. 39 (1), p. 68-72.
- Saoud, M.F.A.; Abdel-Hamid, M.E. & Ibrahim, A.M. (1974): On *Allocreadium sudanensis* sp.nov. (Trematoda: Digenea) from a freshwater fish in the Sudan. J. Helminth. 48, 67-72.
- Saoud, M.F.A.; El-Naffar, M.K. and Abu-Sinna, A. (1974): *Neoechinorhynchus ichthyobori* n.sp. (Acanthocephala: Neoechinorhynchidae) from a freshwater fish in the Sudan. Bull. Zool. Soc. Egypt. 26, 89-93.
- Siddique, A.H. (1965): A new species of genus *Astiotrema* Looss, 1900 with a Key to its species. J. Helminth. 39 (1), 113-116.

HELMINTH PARASITES OF SOME FISHES FROM LAKE MASSER AT ASSWAN

Thomas, J.D. (1957): A new species of the genus *Allocreadium* (Trematoda: Allocreadiidae) from a freshwater fish, *Alestes macrolepidotus* in west Africa. J. West. Sci. Ass., 3, 1-9.

Tiwari, I.P. (1958): Studies on three new species of the genus *Astiotrema* (Trematoda: Plagiorchiidae) from freshwater tortoises. Proc. Nat. Acad. Sci. Ind., 28, 246-252.

Table (1): The relative incidence of helminths in different species of fish examined

Scientific name	Fishes		Parasites								
	Total		Trematodes		Cestodes		Nematodes		Acanthocephala		
	Examined	Positive No. %	No.	%	No.	%	No.	%	No.	%	
<i>Anguilla vulgaris</i>	3	- -	-	-	-	-	-	-	-	-	-
<i>Mormyrus caschive</i>	50	- -	-	-	-	-	-	-	-	-	-
<i>Mormyrus kannume</i>	65	- -	-	-	-	-	-	-	-	-	-
<i>Hydrocyon forskalii</i>	500	476 95.2	-	-	-	-	476	95.2	-	-	-
<i>Hydrocyon lineatus</i>	300	282 94	-	-	-	-	282	94	-	-	-
<i>Hydrocyon brevis</i>	300	270 90	-	-	-	-	270	90	-	-	-
<i>Alestes nurse</i>	300	206 68.66	-	-	-	-	206	68.66	-	-	-
<i>Alestes dentex</i>	100	45 45	-	-	-	-	45	45	-	-	-
<i>Alestes baremose</i>	100	10 10	-	-	-	-	10	10	-	-	-
<i>Labeo niloticus</i>	100	45 45	45	45	-	-	-	-	-	-	-
<i>Labeo horie</i>	150	23 15.33	23	15.33	-	-	-	-	-	-	-
<i>Labeo coubi</i>	150	20 13.33	20	13.33	-	-	-	-	-	-	-
<i>Barbus bynni</i>	100	66 66	38	38	54	54	7	7	-	-	-
<i>Clarias anguillaris</i>	35	28 80	12	34.28	23	65.71	1	2.85	-	-	-
<i>Clarias lazera</i>	50	41 82	22	44	31	62	3	6	-	-	-
<i>Bagrus bayad</i>	150	110 73.33	100	66.66	-	-	64	42.66	-	-	-
<i>Bagrus docmac</i>	200	150 75	120	60	-	-	98	49	35	17.5	-
<i>Chrysichthys auratus</i>	100	- -	-	-	-	-	-	-	-	-	-
<i>Chrysichthys ruppelli</i>	100	- -	-	-	-	-	-	-	-	-	-
<i>Synodontis schall</i>	200	70 35.5	-	-	65	32.6	57	28.5	-	-	-
<i>Synodontis serratus</i>	150	52 34.66	-	-	47	31.33	40	26.66	-	-	-
<i>Eutropius niloticus</i>	200	8 4	-	-	-	-	8	4	-	-	-
<i>Schilbe mystus</i>	150	70 46.66	-	-	-	-	70	46.66	-	-	-
<i>Schilbe uranoscopus</i>	200	85 42.5	-	-	-	-	85	42.5	-	-	-
<i>Malopterurus electricus</i>	5	- -	-	-	-	-	-	-	-	-	-
<i>Lates niloticus</i>	300	260 86.66	-	-	-	-	260	86.66	240	80	-
<i>Tilapia nilotica</i>	300	140 46.65	-	-	-	-	117	39	137	45.66	-
<i>Tilapia galilaea</i>	200	100 50	-	-	-	-	92	46	86	4.3	-
<i>Tilapia zilli</i>	150	65 43.33	-	-	-	-	65	43.33	-	-	-
<i>Tetraodon fahaka</i>	25	23 92	23	92	-	-	-	-	-	-	-
Total	4733	2645 55.88	403	8.51	220	4.65	2256	49.77	498	10.52	-

Table (2): The number and percentage of parasites in each species of infected fish

Fishes	Total number of parasites		Trematodes 4345		Cestodes 2065		Nematodes 47237		Acanthocephala 4511	
	No.	%	No.	%	No.	%	No.	%	No.	%
<i>Hydrocyon forskalii</i>	-	-	-	-	-	-	16111	34.10	-	-
<i>Hydrocyon lineatus</i>	-	-	-	-	-	-	6776	14.34	-	-
<i>Hydrocyon brevis</i>	-	-	-	-	-	-	4635	9.81	-	-
<i>Alestes nurse</i>	-	-	-	-	-	-	1440	3.04	-	-
<i>Alestes dentex</i>	-	-	-	-	-	-	540	1.14	-	-
<i>Alestes baremose</i>	-	-	-	-	-	-	80	0.17	-	-
<i>Labeo niloticus</i>	135	4.66	-	-	-	-	-	-	-	-
<i>Labeo horie</i>	92	1.59	-	-	-	-	-	-	-	-
<i>Labeo coubi</i>	80	1.38	-	-	-	-	-	-	-	-
<i>Barbus bynni</i>	420	9.23	240	11.62	-	-	21	0.044	-	-
<i>Clarias anguillaris</i>	48	0.83	184	8.91	-	-	10	0.021	-	-
<i>Clarias lazera</i>	147	2.54	214	10.36	-	-	36	0.076	-	-
<i>Bagrus bayad</i>	1364	32.78	-	-	-	-	1002	2.12	-	-
<i>Bagrus docmac</i>	1737	40.20	-	-	-	-	1666	3.52	105	2.32
<i>Synodontis schall</i>	-	-	910	44.06	-	-	798	1.69	-	-
<i>Synodontis serratus</i>	-	-	517	25.03	-	-	400	0.84	-	-
<i>Eutropius niloticus</i>	-	-	-	-	-	-	80	0.17	-	-
<i>Schilbe mystus</i>	-	-	-	-	-	-	1400	2.96	-	-
<i>Schilbe uranoscopus</i>	-	-	-	-	-	-	1275	2.70	-	-
<i>Lates niloticus</i>	-	-	-	-	-	-	9911	20.98	2880	63.84
<i>Tilapia nilotica</i>	-	-	-	-	-	-	565	1.24	1096	24.29
<i>Tilapia galilaea</i>	-	-	-	-	-	-	276	0.58	430	9.53
<i>Tilapia zilli</i>	-	-	-	-	-	-	195	0.41	-	-
<i>Tetraodon fahaka</i>	322	6.76	-	-	-	-	-	-	-	-

Table (3): The relative incidence of trematode parasites in different species of fish examined and the varied, mean and total numbers of parasites

Fishes	Scientific name of trematode parasites	No. of fish examined	Positive		varied number of parasites per infected fish	mean number of parasites per infected fish	Total number of parasites
			No.	%			
Labeo niloticus	Nematobothrium labeonis	100	45	45	2 - 6	3	135
Labeo horie	Nematobothrium labeonis	150	23	15.3	2 - 6	4	92
Labeo coubi	Nematobothrium labeonis	150	20	13.3	2 - 6	4	80
Barbus bynni	Allocreadium aswanensis	100	38	38	5 - 14	9	342
	Allocreadium bynni	100	26	26	3 - 4	3	78
Clarias anguillaris	Pristotrema clarii	35	12	34.29	4 - 5	4	48
Clarias lazera	Astiotrema lazeri	50	1	2	5	5	5
	Orientocreadium lazeri	50	1	2	2	2	2
	Pristotrema clarii	50	20	40	6 - 8	7	140
Bagrus bayad	Acanthostomum spiniceps	150	72	48	9 - 15	12	864
	Acanthostomum absconditum	150	50	33.3	7 - 17	10	500
Bagrus docmac	Acanthostomum spiniceps	200	83	41.5	7 - 11	9	747
	Acanthostomum absconditum	200	90	45	7 - 15	11	990
Tetraodon fahaka	Astiotrema impletum	25	23	92	5 - 26	14	322

HELMINTH PARASITES OF SOME FISHES FROM LAKE NASSER AT ASSWAN

Table (4): The relative incidence of cestode parasites in different species of fish examined and the varied, mean, and total numbers of parasites

Fishes	Scientific name of cestode parasites	No. of fish examined	Infected fishes		varied number of parasites per infected fish	mean number of parasites per infected fish	Total number of parasites
			No.	%			
Barbus bynni	Caryophyllaeus laticeps	100	39	39	3 - 10	5	195
	Bothriocephalus barbuis	100	15	15	3 - 4	3	45
Clarias lazera	Proteocephalus sulcatus	50	30	60	6 - 10	7	210
	Marsypocephalus aegyptiacus	50	1	2	4	4	4
Clarias anguillaris	Proteocephalus sulcatus	35	23	65.71	6 - 10	8	184
Synodontis schall	Wenyonia virilis	200	65	32.5	5 - 41	14	910
Synodontis serratus	Wenyonia virilis	150	47	31.3	3 - 28	11	517
							2065

Table (5): The relative incidence of adult and larval nematode parasites in different species of fish examined and the varied, mean and total numbers of parasites

Fishes	Scientific name of nematode parasites	No. of fish examined	Infected fishes		varied number of parasites per infected fish	mean number of parasites per infected fish	Total number of parasites
			No.	%			
Hydrocyon forskalii	Philometroides hydrocyonae	500	476	95.2	12-23	7	8092
	Rhabdochona aegyptiacus	500	48	9.6	1-4	3	144
	Amplichaecum sp. (Larva)	500	315	63	20-34	25	7875
Hydrocyon lineatus	Philometroides hydrocyonae	300	282	94	10-17	14	3964
	Rhabdochona aegyptiacus	300	35	11.6	3-5	4	140
	Amplichaecum sp. (Larva)	300	168	56	12-25	16	2688
Hydrocyon brevis	Philometroides hydrocyonae	300	270	90	9-20	15	4050
	Rhabdochona aegyptiacus	300	36	12	3-4	4	144
	Amplichaecum sp. (Larva)	300	49	16.3	7-15	9	441
Alestes nurse	Amplichaecum sp. (Larva)	300	206	68.66	5-15	7	1440
Alestes dentex	Amplichaecum sp. (Larva)	100	45	45	6-15	12	540
Alestes baremose	Amplichaecum sp. (Larva)	100	10	10	8-10	8	80
Barbus bynni	Cucullanus barbi	100	7	7	2-5	3	21
Clarias lazera	Amplichaecum sp. (Larva)	50	3	6	12-15	12	36
Clarias anguillaris	Amplichaecum sp. (Larva)	35	1	2.85	10	10	10
Bagrus bayad	Thwaitia bagri	150	14	9.3	3-5	3	42
	Amplichaecum sp. (Larva)	150	64	42.6	8-22	15	960
Bagrus docmac	Amplichaecum sp. (Larva)	200	98	49	14-25	17	1666
Synodontis schall	Cithariniella citharini	200	57	28.5	6-20	14	798
Synodontis serratus	Cithariniella citharini	150	40	26.66	5-17	10	400
Eutropius niloticus	Amplichaecum sp. (Larva)	200	8	4	6-10	10	80
Schilbe mystus	Amplichaecum sp. (Larva)	150	70	46.66	7-23	20	1400
Schilbe uranoscopus	Amplichaecum sp. (Larva)	200	85	42.5	8-20	15	1275
Lates niloticus	Dichelyne fossor	300	52	17.3	3-8	5	260
	Philometroides sp.	300	4	1.3	2-6	4	16
	Amplichaecum sp. (Larva)	300	235	78.33	15-70	41	9635
Tilapia nilotica	Amplichaecum sp. (Larva)	300	117	19	3-8	5	585
Tilapia galilaea	Amplichaecum sp. (Larva)	200	92	46	2-5	3	276
Tilapia zilli	Amplichaecum sp. (Larva)	150	65	43.33	3-5	3	195
							47237

Table (6): The relative incidence of Acanthocephala parasites in different examined species of fish examined and the varied, mean, and total numbers of parasites

Fishes	Scientific name of Acanthocephala parasites	No. of fish examined	Infected fishes		varied number of parasites per infected fish	Mean number of parasites per infected fish	Total number of parasites
			No.	%			
Bagrus docmac	Neoechinorhynchus sp.	200	35	17.5	3 - 5	3	105
Lates niloticus	Tenuisentis niloticus	300	240	80	7 - 16	12	2880
Tilapia nilotica	Acanthosentis tilapi	300	137	45.66	3 - 10	8	1096
Tilapia galilaea	Acanthosentis tilapi	200	86	43	4 - 7	5	430
							4511

Table (7)

The number of parasites and the percentage of infection in each region of fish examined

Parasites	The number of infected fish	Total number of parasites	Number of parasites							
			in the intestine		in the muscles		in the orbit of the eye		in the fins	
			No.	%	No.	%	No.	%	No.	%
Trematodes	403	4345	4038	92.93	-	-	307	7.06	-	-
Cestodes	220	2065	2065	100	-	-	-	-	-	-
Nematodes	2256	47237	1907	4.03	28126	59.55	-	-	19111	40.45
Acanthocephala	498	4511	4511	100	-	-	-	-	-	-