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**AN APPROACH TO HELMINTH PARASITES OF CATFISH
(CLARIAS LAZERA) IN BENI-SUEF GOVERNORATE**
(With 12 Figs.)

By
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دراسة وصفية عن الديدان الطفيلية في أسماك القراميط بمحافظة بني سويف
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أجريت هذه الدراسة على الديدان الطفيلية المعوية في أسماك القراميط بمحافظة بني سويف .
أثبتت الدراسة أن أسماك القراميط عوائل طبيعية لسبعة ديدان من الديدان المعوية ، ولقد أمكن
التعرف على هذه الديدان فكانت ثلاثة منها تتبع الديدان الورقية (تريماتودا) ودودة واحدة تتبع
الديدان الشريطية (سيستودا) وثلاثة من الديدان الاسطوانية (نيماتودا) معظم هذه الديدان سبق أن
سجلت من أسماك القراميط في أماكن متفرقة ماعدا دودة الترماتودا (جلوسهديم برياتم) الدودة الاسطوانية
رايدكونابيلوسيدا اللتان سجلتا قبل ذلك من أسماك البياض . وأثبتت الدراسة أن أسماك القراميط
عوائل لهذه الديدان .

SUMMARY

In the present study Clarias lazera fishes in Beni-Suef Governorate have been investigated for helminth parasites. The authors found seven worms composed of three trematodes identified as Glossidium pedatum, Orientocreadium batrachoides and Sanguincola clarias and one cestode, Polyonchobothrium clarias, in addition to three nematodes namely Rhabdochona pellucida, Paracamallanus cyathopharynx and Procamallanus laevisconchus. Most of the fore-mentioned worms were recorded from other localities in Egypt with the exception of Glossidium pedatum which is (TREMATODA, LOOSS, 1899) as well as Rhabdochona pellucida (Nematoda, GUSTAFSON, 1949) recorded for the first time from (Clarias lazera in Egypt).

INTRODUCTION

Fish is considered as one of the most promising sources for animal protein of high biological value due to its contents of nearly all essential amino acids necessary for man, animal and poultry. Nowadays many researchers in the world are interested in fish borne diseases as well as in fish disease proper (SHALABY, 1982 and 1985). In Egypt, although a big deal of research work has been achieved on enteric helminth

parasites infesting fresh water fish, no data have been published about the helminth parasites infesting fresh water fish in Beni-Suef Governorate. However, many authors recorded and described trematode parasites from Clarias lazera in other localities than Beni-Suef including Orientocreadium batrachoides (KHALIL, 1961; FISCHTHAL and KUNTZ, 1963; IMAM, 1971; SAHLAB, 1982; ABU EL-HAG, 1985; NEGM EL-DIN, 1987 and ABU ELEZZ, 1988). Sanguicola clarias (IMAM, et al. 1984). EL-BASEL (1987) was the first to record and describe Glossidium pedatum sp. from Bagrus bayad. The cestode parasite Polyonchobothrium clarias was also recorded and described from Clarias lazera in Egypt (TADROSS, 1966; IMAM, 1971 and ABU-ELEZZ, 1988). On the other hand, many nematode parasites had been recorded and described from the catfish in Egypt as Paracamallanus cyathopharynx and Procamallanus laeviconchus (BAYLIS, 1923; EL-NAFFAR, 1970; IMAM, 1971; SAHLAB, 1982; NEGM EL-DIN, 1987 and ABU ELEZZ, 1988). At the same time, EL-NAFFAR (1970) was the first to describe Rhabdochona sp. from Egyptian Anquilla vulgaris and Barbus bynni at Assiut Governorate. FAHMY, et al. (1976) recorded the same species from the hosts and same locality. So, it was found worth to investigate the enteric helminth parasites which may infest catfish in Beni-Suef Governorate.

MATERIAL and METHODS

65 fishes belonging to Clarias lazera were collected during the present study from Beni-Suef markets, during the period from April to November, 1989.

Fishes were brought fresh or alive to the laboratory where they were autopsied and examined for the detection of enteric helminthes. Upon autopsy, fresh mature worms were washed in normal saline, then permanent mounts were satisfactorily obtained on using the lactophenol technique (CARLETON, 1967). The work is provided with microphotographs and measurements in mm. unless otherwise stated.

RESULTS

Glossidium pedatum (Looss, 1899), (Fig. 1):

The following description is based on six specimens. From the Fig. (1): The body was entirely spined slightly rounded anteriorly 1.82 (1.30-2.50) mm. long and 0.58 (0.25-0.80) mm. wide. The oral sucker is slightly rounded to truncate, wider than long 0.22 (0.18-0.26) mm. and 0.25 (0.21-0.30) mm. wide. The ventral sucker is rounded 0.24 (0.17-0.27) mm. long and 0.24 (0.18-0.28) mm. wide, located 0.44 (0.39-0.54) mm. from the anterior end of the body. The prepharynx was folded inwards to form a sphincter-like structure measuring 0.06 (0.04-0.08) mm. in length. Pharynx was developed 0.14 (0.12-0.18) mm. long and 0.10 (0.08-0.13) mm. width. The oesophagus was very short 0.026 (0.020-0.035) mm. in length and the coeca bifurcated at 0.24 (0.22-

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0.32) in front of the acetabulum and terminated close to the posterior extremity.

The testis were diagonal or sometimes nearly tandem; the anterior testis was dextral 0.16 (0.12-0.23) mm. by 0.21 (0.15-0.29) while the posterior testis was sinistral 0.28 (0.17-0.33) mm. by 0.25 (0.19-0.29) mm. wide. The cirrus pouch was inverted J-shaped in the ventral view, thick walled and extending longitudinally 0.26 (0.22-0.32) mm. long by 0.065 (0.05-0.09) mm. The seminal vesicle was bipartite, the posterior, anterior chambers and pars prostatica were somewhat elongate; prostate cells few, cirrus long; genital atrium small and genital pore antero-dextral to the acetabulum

The ovary was transversely elongate 0.19 (0.13-0.28) by 0.22 (0.18-0.24) mm. lying directly postacetabular. The ootype complex was just post ovarian. The seminal receptacle was usually adherent to ovary, transversely elongate 0.11 (0.07-0.14) by 0.10 (0.08-0.15) mm. The vitelline glands were follicular and occupying lateral fields overlapping the coeca they extended from the posterior part of acetabulum or just post-acetabular to the post testicular space. The uterus in mature adults filled most of the hind body lying ventral to gonads and occasionally overlapping the coeca. The excretory vesicle was long, tubular passing dorsally and medially to open into the excretory pore. The intra-uterine eggs were brown, measuring (29-36) by (16-21) μ .

2- Orientocreadium batrachoides (Tubangui, 1931):

Concerning trematode parasites collected from Clarias lazera this was the most common and the largest one of the three detected intestinal flukes in such type of fish. The body was elongated (1.52 x 0.45) mm. and covered with fine spines.

The oral sucker was oval to rounded and measured 0.130 (0.115-0.185) by 0.124 (0.119-0.193) mm. The ventral sucker was usually of the same size or slightly smaller or larger than oral one. It measured 0.128 (0.102-0.182) by 0.120 (0.09-0.175) mm. followed by short oesophagus measuring 0.06 (0.022-0.083) mm. long.

The gonads were comparatively large arranged in one vertical median plane, the testis were rounded, tandem in position being located in posterior half of the body. The anterior testis measured 0.153 (0.121-0.228) by 0.169 (0.104-0.236) mm. while the posterior one measured 0.142 (0.101-0.258) by 0.158 (0.107-0.210) mm. The ovary was located in front of the middle body and measured 0.110 (0.072-0.018) by 0.085 (0.059-0.147) mm. The vitelline follicles were extending from the level of the ovary to the posterior extremity. The external seminal vesicle measured 0.162 (0.073-0.189) by 0.144 (0.080-0.169) mm. The genital pore was median or submedian at anterior margin of the ventral sucker. The uterus was represented by a narrow coiled tube following the posterior two third of body, usually filled with eggs each was measuring 0.027 (0.019-0.039) by 0.023 (0.016-0.028) mm. (Fig. 2).

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3- Sanguinicola clarias (Imam, et al. 1984) Fig. (3):

The following description is based on four specimens collected from Clarias lazera caught from Beni-Suef markets. Description: The body was elongate, lanceolate and delicate tapering towards both ends, but more pointed at the anterior end. The posterior end was not constricted off the rest of the body. Tegument was provided with regularly arranged marginal spines. The anterior end was provided with well defined snout bearing four pairs of rose thorn spines arranged on either side of the mid line. The body measured 2.32 (2.19-2.57) mm. long and 0.36 (0.33-0.40) mm. wide. Mouth opening was terminal pharynx elongated 0.032 (0.025-0.046) mm. long. The oesophagus measured 0.69 (0.55-0.82) mm. long and terminates into the X-shaped-four lobed intestinal coeca at the level of the first $\frac{1}{5}$ th - $\frac{1}{3}$ rd of the body length. Each coecum measured 0.23 (0.19-0.28) mm. long. The testes were represented by 6-8 pairs of acini located behind and extending posteriorly till the ovary. Cirrus sac was pear shaped measured 0.29 (0.13-0.46) mm. and 0.05 (0.03-0.08) mm. wide. The cirrus sac occupied nearly most of the right post-ovarian region ending in the male genital opening which lies below the female genital opening.

The ovary measured 0.30 (0.26-0.35) mm. long and 0.13 (0.11-0.15) mm. wide and considered of a median double winged organ at about the beginning of the last third of the body length. The oviduct was distinct extending from the ovary backwards to reach the ootype on the vitelline duct was observed in the two specimens, it runs medially between the oviduct and cirrus sac to join the oviduct before it reached the ootype.

The vitelline glands consisted of lateral groups of fine follicles extending from pharynx to the ovary. The uterus was short extending from the ootype anteriorly for a distance then turns back to open into the female genital opening dislantly to the left of the median plane and just anterior to the male genital pore.

The eggs are not seen in the two specimens examined during the present work.

Polyonchobothrium clarias (Wooland, 1925 & Meggitt, 1930)

Small cylindrical cestodes, the worm was the commonest cestode recorded in the present work. The obtained specimens measured 17.20 (7.30-26.95) mm. in length. The scolex measured (0.360 X 0.245) mm. carried one row of 26-32 (mean 28) hooks and beared two shallow bothria of equal size, mean (0.19 X 0.75) mm. No neck was detected and segmentation began directly after the scolex. All segments are broader than longer. Immature segments were (0.082 X 0.202) in size, mature (0.128 X 0.202) in size. Each contain a single set of genitalia with a central oval or kidney-shaped and smooth ovary measuring (0.056 X 0.039) mm. in mean size. The testes were large; globular, smooth contoured. 14 in number and occupied the interexcretory ducts space surrounding the ovary. The uterus was large, being poster-

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iorly located the gravid segments of mean size (0.193 X 0.359) mm. The latter segments were empty and completely large. The uterus appeared as a round or oval sac occupying almost the whole bulk of the segments. The eggs varied in shape from spherical to subglobular with thin shell containing well developed embryo (Fig. 4 & 5).

Rhabdochona pellucida: (Gustafson, 1949):

It was obtained from Clarias lazera for the first time in the present study. It belongs to the order Spiruroidea the female was the only recorded. Its length was (15.23) mean mm. by 0.162 width. The vestibule (prostom) was funnel shaped, measuring (0.051 X 0.036). The prostom was supported by 14 longitudinal ridges ending anteriorly by teeth. The muscular part of the oesophagus measured (0.92) mm. while the glandular part was (1.82) mm. in length. Nerve ring was located at a distance of (0.23) mm. from the anterior end. The valval opening was located at (6-32 mm.). Tail was tapering measured (0.310) in length (Fig. 11 & 12).

Paracamallanus cyathopharynx (Baylis, 1923):

Another spiruroidea nematoda collected from Clarias lazera measuring a mean size of (4.37 X 0.100) mm. and (8.20 X 0.139) mm. in male and female respectively. The mouth opening was dorsoventrally transverse slit located at the extreme anterior tip guarded laterally by two shell like chitinous buccal capsule. The dorsal and ventral sides of the anterior part of the buccal capsule were armed with large tridents. The buccal capsule was well developed, funnel-shaped and reaching a mean size of (0.059 X 0.049) and (0.072 X 0.092) mm. in male and female respectively. The buccal capsule was followed by longitudinal oesophagus. The muscular part of the oesophagus measured (0.042 X 0.039) and (0.510 X 0.085) mm. in male and female respectively, while the glandular part measured (0.53 X 0.042) and (0.710 X 0.083) mm. in male and female respectively. In the female tail was conical in shape ending in three small cone shaped processes measuring (0.392) mm. In male, the posterior end of the body was provided with a narrow alae. Tail was curved and measured (0.094) mean mm. There were 10 pairs of papillae. There were 2 unequal spicules, the larger was strongly sclerotized measured (0.301) mm. while the smaller was weakly sclerotized and measured (0.213) mm. length (Fig. 5, 7 & 8).

Procamallanus laeviconchus (Railliet and Heneryl, 1915):

Adult worms male and female were collected from the stomach of the Clarias lazera. They were small larviparous spiruridae nematodes measuring a mean size of (2.921 X 0.120) and (4.42 X 0.131) mm. in males and females respectively. The buccal capsule was chitinous measuring a mean size of (0.041 X 0.039) and (0.063 X 0.049) mm. in males and female respectively. The mouth apperture was wide. There were four oral papillae two dorsolateral and two ventrolateral. The buccal capsule followed

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by the oesophagus, the muscular part measured (0.285 mean mm.) and (0.393 mean mm.) in male and female respectively, while the glandular part measured (0.420 mm. mean) and (0.532 mm. mean) in male and female respectively. In female, the single tubular ovary with the remaining gonadal parts occupies nearly the whole intestinal region. The vulva was located nearly at the middle of the worm. The nerve ring was present at 0.125 mm. mean. In male the tail appears short of only 0.038 length preceded by two unequal curved spicules, just in front of the cloacal opening beside 8-10 pairs of precloacal, two pairs adanal and five pairs of post cloacal papillae (Fig. 6, 9 & 10).

DISCUSSION

Clarias lazera fish was a preferred fish by most of research workers because of its publicity and predominance elsewhere in Egypt. The present approach was performed in order to explore its helminth parasites in Beni-Suef Governorate.

It was of interest to find out that certain helminthes proved to be host specific like Orientocreadium batrachoides, Sanguinicola clarias, Polyonchobothrium clarias, Paracamallanus cyathopharynx and Procamallanus laeviconchus. Such helminthes which were recorded to occur in Clarias lazera from various Egyptian localities, where most authors recorded them. (WEDL, 1982; KHALIL, 1961; FISCHTHAL and KUNTZ, 1963; TADROS, 1966; IMAM, 1971; FAHMY, *et al.* 1976; IMAM, *et al.* 1984; ABU-EL-HAG, 1985 and ABU-ELEZZ, 1988). It was also of interest in the present study to record a rare trematoda Glossidium pedatum (LOOSS, 1899) stated to occur only by EL-BASEL (1987) from Bagrus bayad fish in Fayoum province, so it can be considered as a new host and new locality record.

Among the detected nematodes Rhabdochona pellucida (GUSTAFSON, 1949) was also recorded from Clarias lazera at Beni-Suef, where as it was only recorded by IMAM, (1971) from Bagrus bayad at Giza. So, this can also be considered a new host and a new locality record.

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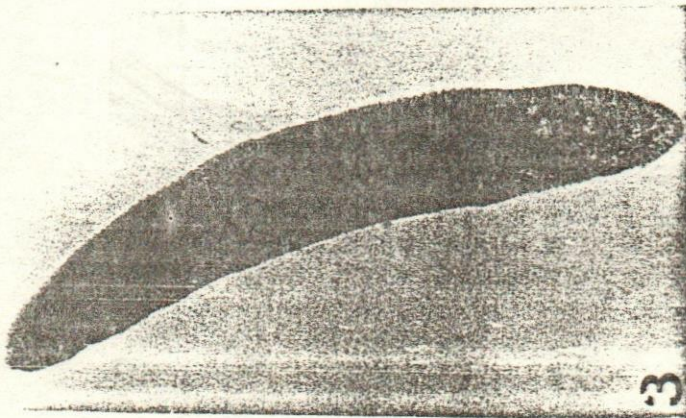
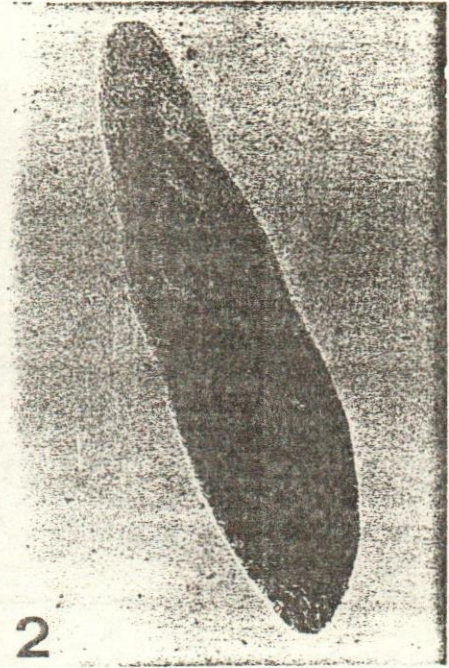
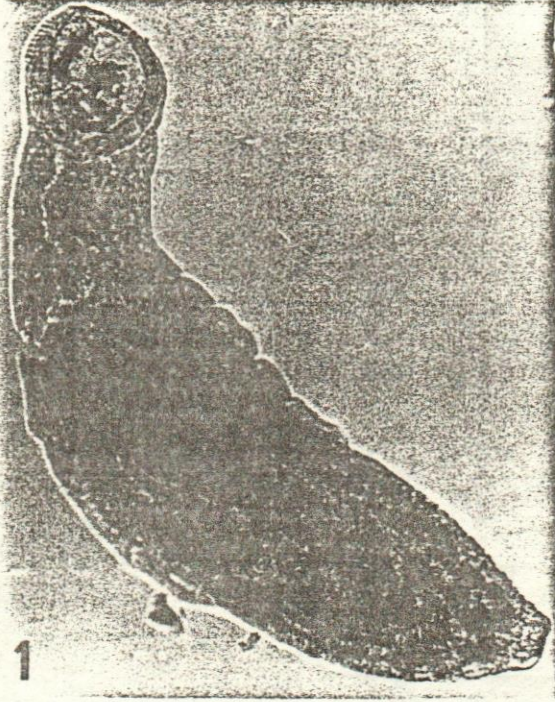
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Fig. (1): Glossidium pedatum X 100.

Fig. (2): Orientocreadium batrachoides X 40

Fig. (3): Sanguincola Clarias X 40



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Fig. (4): Polyonchobothrium clarias X 10

Fig. (5): Paracamallanus cyathopharynx Anterior end X 40

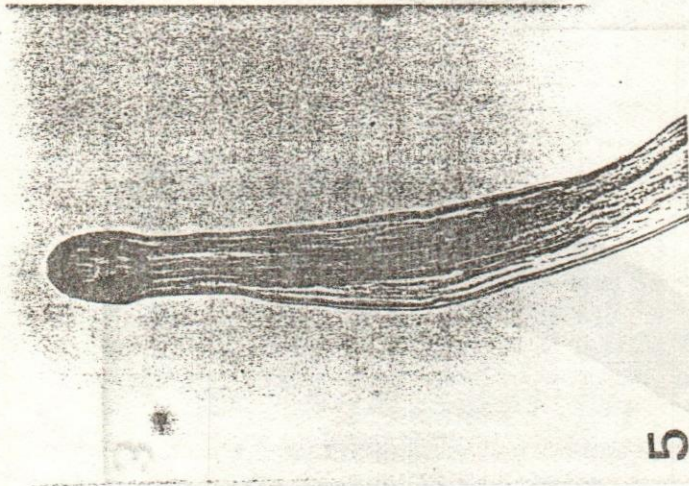
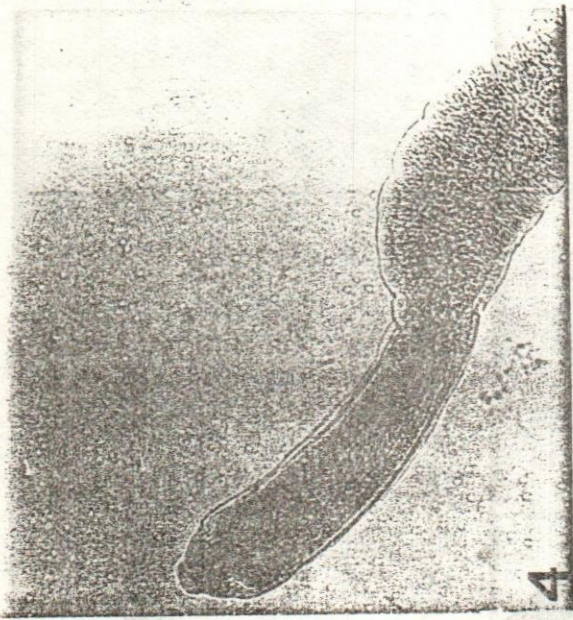
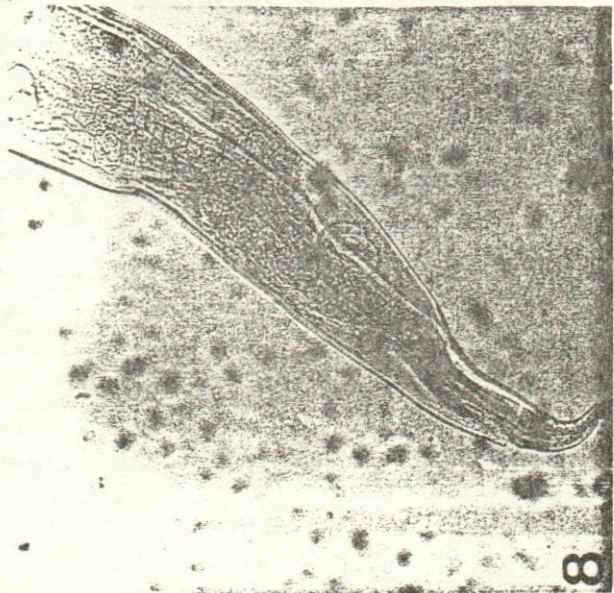
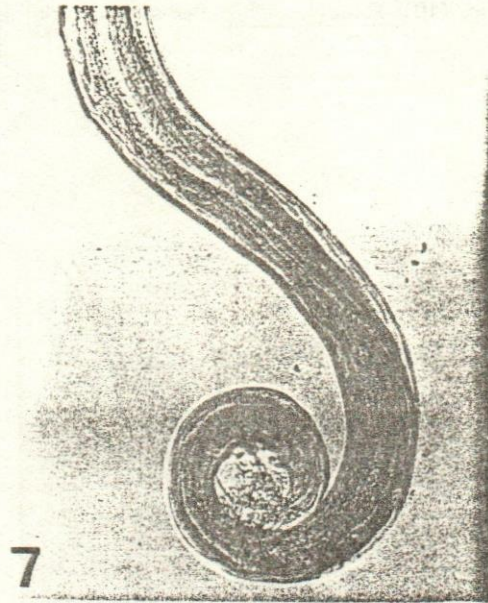
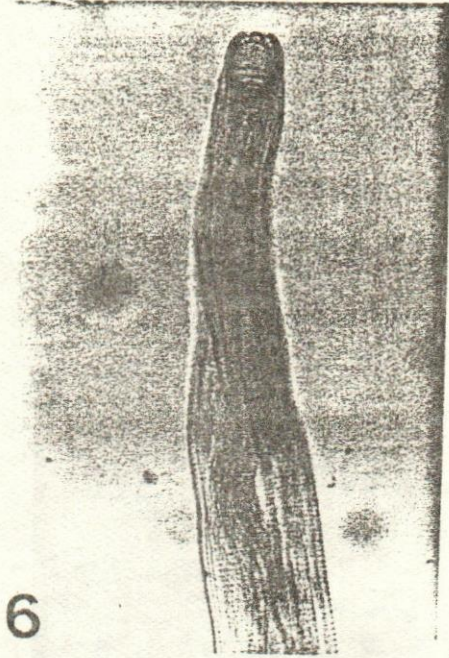


Fig. (6): Procamallanus laeviconchus Anterior end X 40

Fig. (7): P. cyathopharynx Male posterior end X 40

Fig. (8): P. cyathopharynx Female posterior end X 40



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Fig. (9): P.laeviconchus Male posterior end X 40

Fig. (10): P.laeviconchus Female posterior end X 40

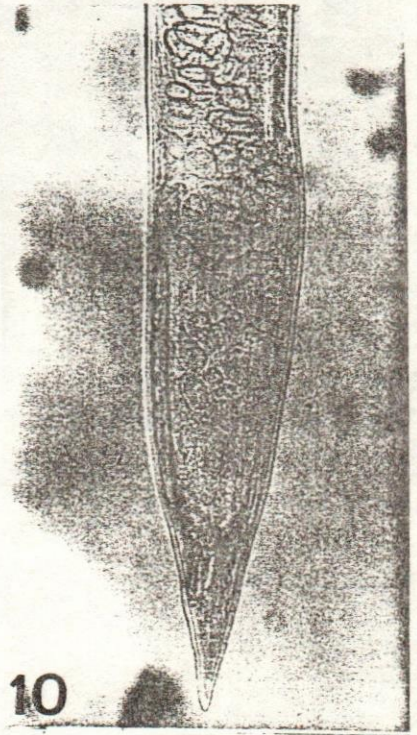
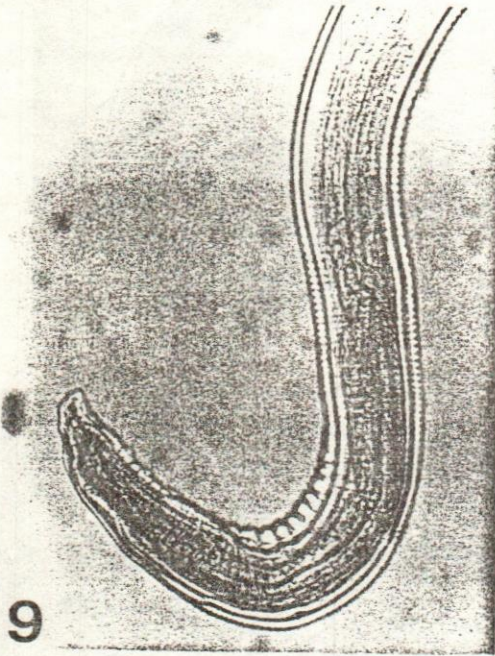


Fig. (11): Rhabochona pellucida Anterior end X 40

Fig. (12): R.pellucida Female posterior end X 40

