

Nematodes Parasites from Sciaenids Fishes of Parangipettai, Southeast Coast of India

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Abstract: This study has been carried out from December, 2004 to July, 2005 in the sciaenid fishes along parangipettai coastal waters. The study aimed to establishing the magnitude of parasitization in different fish species as well as quantifying the relationship between the parasites and their fish hosts. There are 78 fresh sciaenid fishes belong's to 6 genus were examined for parasites of which 34.6% i.e. (27/78) showed the nematode prevalence. Of 10 species of parasites, such as *Contracaecum aduncum*, *Cucullanus aunulatus*, *Camallanus truncates*, *Ascrophis filiformis*, *Rhaphidascaris acus*, *Porrocaecum* sp., *Hysterothylacium* sp., *Rhabdochona* sp., *Camallanides* sp. and *Paracanthocephalus gracilacanthus*. The *Camallanides* sp. shows their presence in two species of Sciaenids namely *Johnius soldado* and *Pseudosciaeno axillaries*. The maximum number of infection (9) was recorded in by the parasite *Rhabdochona* sp. from the intestine of the host fishes *Pseudosciaeno goldhanni*. Among 8 Sciaenid fishes examined *Otolithus argenteus*, *Kathala axillaries* and *Nibea maculata* were free from parasitic infection in this study.

Key words: Helminth parasite, nematode and prevalence, sciaenid

INTRODUCTION

Parasites and diseases together constitute one of the important ecological factors affecting the successful existence of both natural and cultivated marine organisms. The marine species are pestered by a wide array of parasites and pathogens (Kinne, 1990). In general, parasites prefer to live in equilibrium with their hosts and environment. The direct effect of parasitic infections namely mass mortality of the affected host fishes is of serious economic concern especially in aquaculture operations (Sindermann, 1990). Equally important are the indirect or background effects, such as reduction in condition factor, fecundity and immunity to diseases, increased vulnerability to predation, loss of quantity and quality of flesh, increased susceptibility to microbial infections, disruption of food chain and substantial changes even in the characteristics of ecosystem, which are more manifested in the natural or wild conditions (Kinne, 1984). Parasites are proving their worth in assessing the extent of pollution of natural bodies of water (Moller, 1985). Considerable variations in the parasite fauna of any given host species in different geographic ranges of its distribution warrant local studies. Information on these aspects in wild species is also essential in getting and insight into the parasite and disease problems prevalent in a given host species and in a given geographical area (Biju Kumar, 2006). In these circumstances, investigations on parasites of marine species would be of great applied value.

MATERIALS AND METHODS

The freshly landed Sciaenid fishes (*Johnius dussumieri*, *Dendrophysa russelli*, *Otolithus argenteus*, *Otolithes rubber*, *Nibea soldado*, *Kathala axillari*, *Pseudosciaeno goldhanni* and *Nibea maculate*) were collected from the fish landing of Parangipettai coast. (Lat 11° 29' 53.75"N; Long 79° 45' 25.60"E) from Dec 2004 to July 2005. They were brought to the laboratory and were dissected immediately by using dissection microscope. The parasites were isolated, fixed, stained and mounted following the method of Amato *et al.* (1991) and classification of the nematode parasites were made according to the contributions of Hyman (1955) and Anderson (1992).

RESULTS AND DISCUSSION

Out of 78 Sciaenid fishes examined, 27 species of fishes were infected with 42 Nematodes (Fig.2 (a,b,c...i)). Among the 10 species of parasites, the *Camallanides* sp. shows their presence in two species of Sciaenids namely *Johnius soldado* and *Pseudosciaeno axillaries*. The maximum number of infection (9) was recorded in *Pseudosciaeno goldhanni* by the parasite *Rhabdochona* sp. Among 8 Sciaenid fishes examined *Otolithus argenteus*, *Kathala axillaries* and *Nibea maculata* were free from parasitic infection. The maximum prevalence of parasitic infection was recorded *Nibea soldado* (53.33%). There was no collection of fishes were made in the months of January and February 2005 because of the Tsunami. (Table1 and Fig. 1).

Table. 1: Showed the number of parasites recorded from some Sciaenid fishes

S.No.	Species of Fishes examined	No. Of fish infected	No. of fish (cm)	Fish size	Helminth Parasites	No. of parasites recorded	Prevalence (%)
1.	<i>Johnius dussumieri</i>	10	5	17.5-20.5	1) <i>Contracaecum aduncum</i> and 2) <i>Cucullanus aunulatus</i>	4 3	50
2.	<i>Dendrophysa russelli</i>	9	4	11.5-12.7	1) <i>Camallanus truncates</i> and 2) <i>Ascrophis filiformis</i>	5 2	44.44
3.	<i>Otolithes ruber</i>	11	Nil	20 -28.5	Nil	Nil	0
4.	<i>Nibea soldado</i>	15	8	19.5-22.5	1) <i>Rhaphidascaris acus</i> , 2) <i>Paracanthocephalus gracilacanthus</i> , 3) <i>Porrocaecum</i> sp. and 4) <i>Camallanides</i> sp.	7 1 4 3	53.33
5.	<i>Kathala axillaris</i>	8	4	14.5-20.5	1) <i>Camallanides</i> sp. 2) <i>Hysterothylacium</i> sp.	2 3	50
6.	<i>Pseudosciaeno goldhanni</i>	15	6	19.5-20.5	1) <i>Rhabdochona</i> sp.	9	40
7.	<i>Nibea maculata</i>	10	Nil	17.5-20	Nil	Nil	0

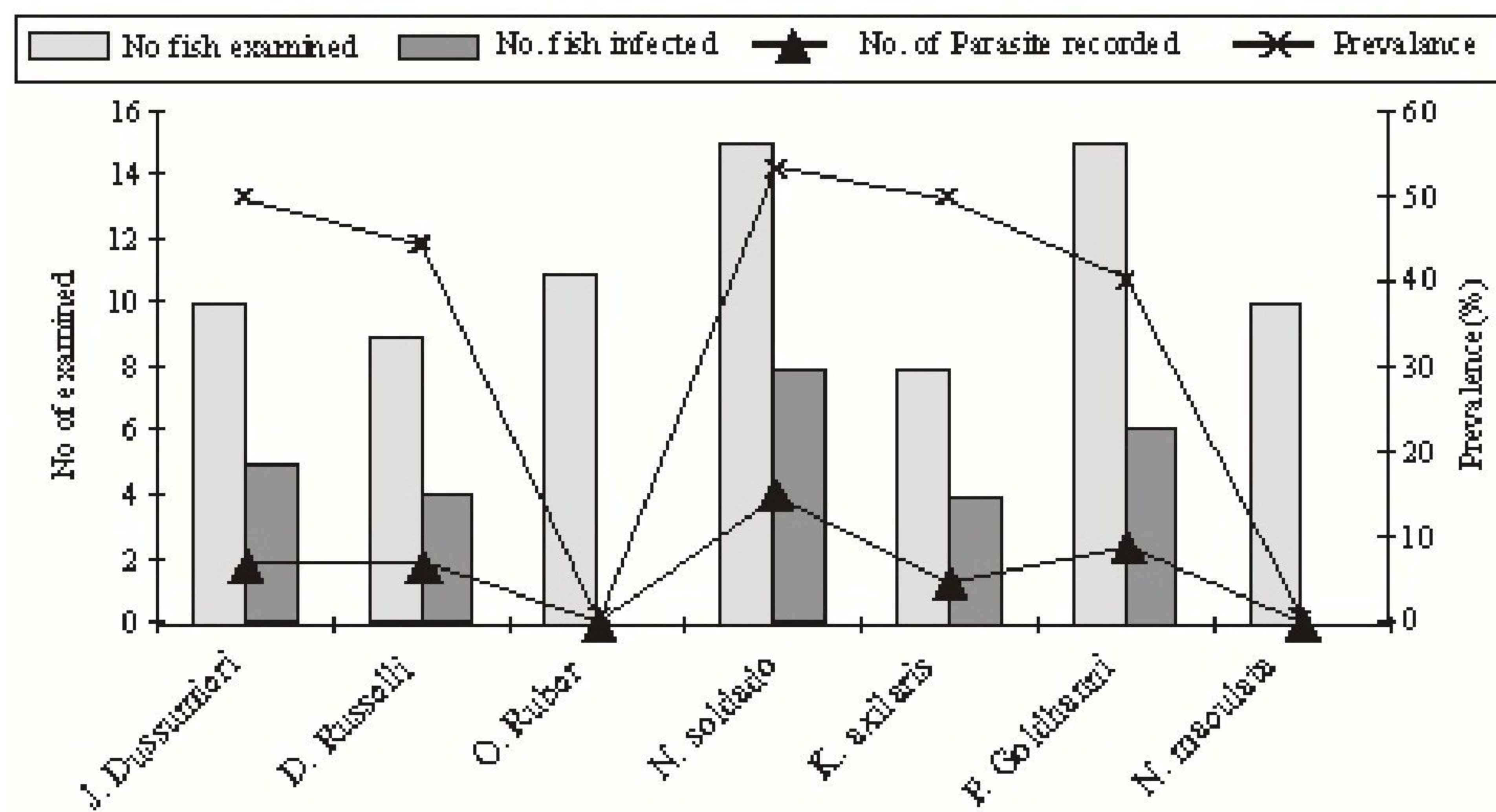


Fig 1: Numbers of fish, parasite infection and Helminth parasite examined

Description of parasites:

Porrocaecum sp. (Fig. 2a)

Family: Heterocheilidae: The total length of the parasite varying from 4.1 mm to 17.1mm. Pharynx muscular as in *Contracaecum trichiuri*, but no pharyngeal caecum, intestine however extends forwards thus forming a caecum near the side of the pharynx, ventriculus short but not well demarcated

Rhaphidascaris acus (Fig. 2b)

Order: Ascaroidea:

Family: Oxyuroid: In *Rhaphidascaris* (Thomas, 1937 b) the eggs after developing in water to second stage juveniles are infective to small fishes in which they encyst in the liver and mesenteries the cycle is completed when such infected fish are eaten by the definitive host.

Rhabdochona sp. (Fig. 2c)

Order: Spiruroidea:

Family: Rhabdochonidae: The spiruroids parasites, the digestive tract and swim bladder of fishes, usually distributed among the Thelaziidae and spiruroidea assembled by Skrajabin(1946) into a family

Rhabdochonidae. the principle genera is *Rhabdochona* with ten or twelve buccal ridges terminating.

Ascarophis filiformis (Fig. 2d)

Order: Spiruridae:

Family: Thelaziidae: A group of four genera superficially characterized by a spiny cuticle often regarded as a family or sub family rectularidae are provisionally placed in the Thelaziidae.

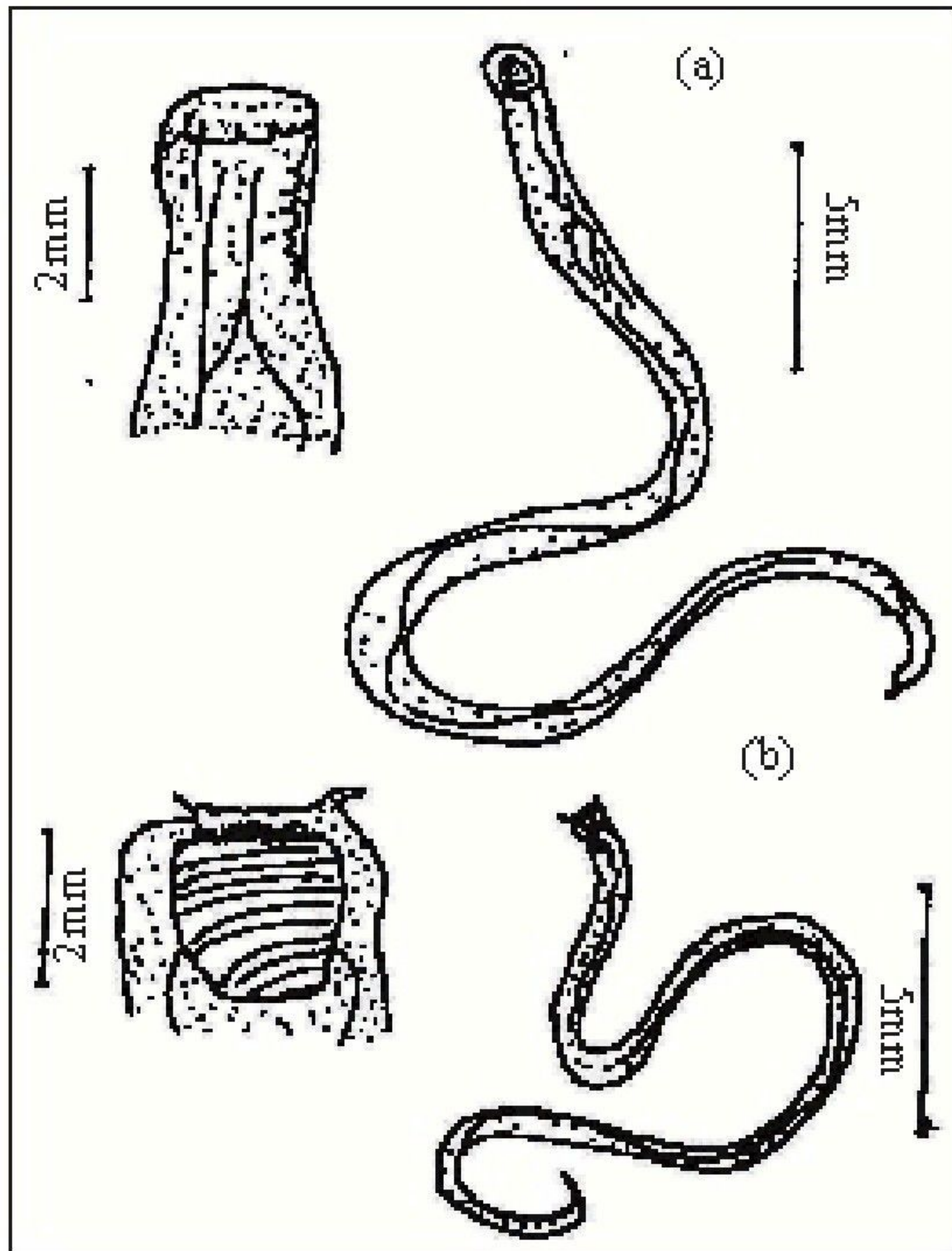
Camallanus truncates (Fig. 2e)

Order: camallanata:

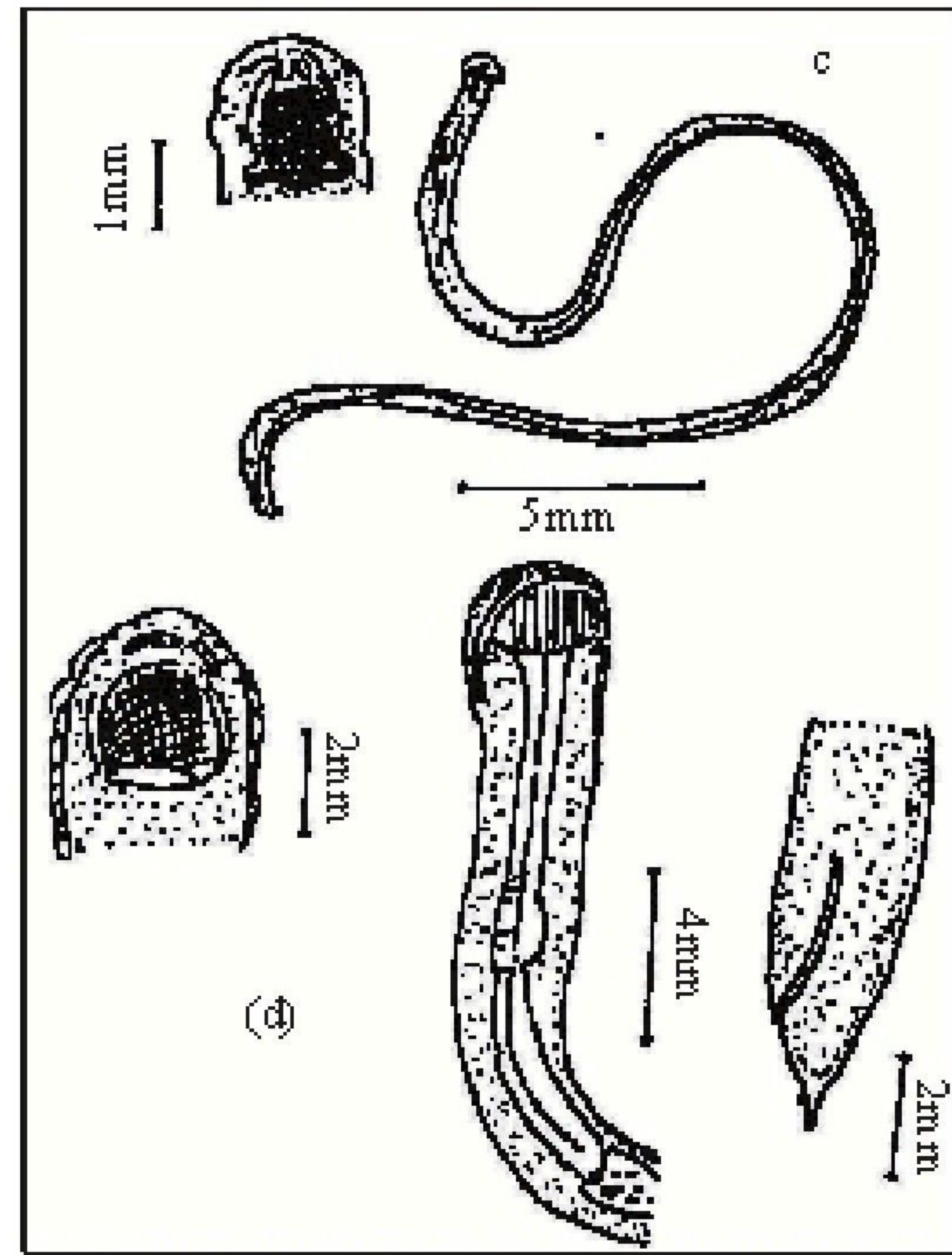
Family: camallanoidea: The camallanids possess a skeleton like element at the anterior end and a strong sucker. Anatomically, cuculanids are distinguished from camallanids. The members of this family develop via intermediate host. In fish they inhabited mainly the intestine. Species of the genera *camallanus* and *procamallanus* are frequent parasites in fishes.

Hysterothylacium sp. (Fig. 2f)

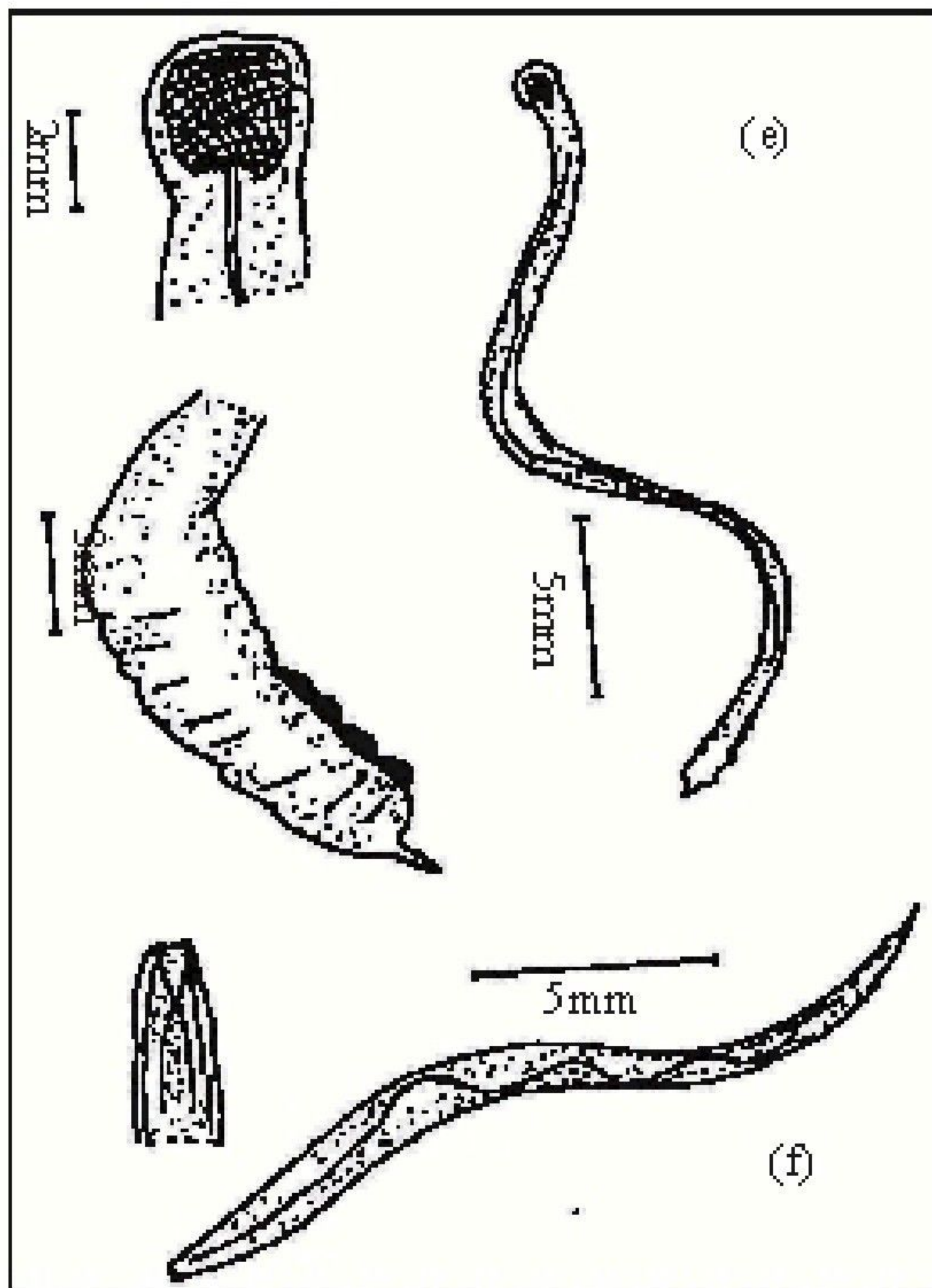
Family: Anisakidae: Small larvae cuticle annulated, very thin lateral alae, inconspicuous anteriorly widening



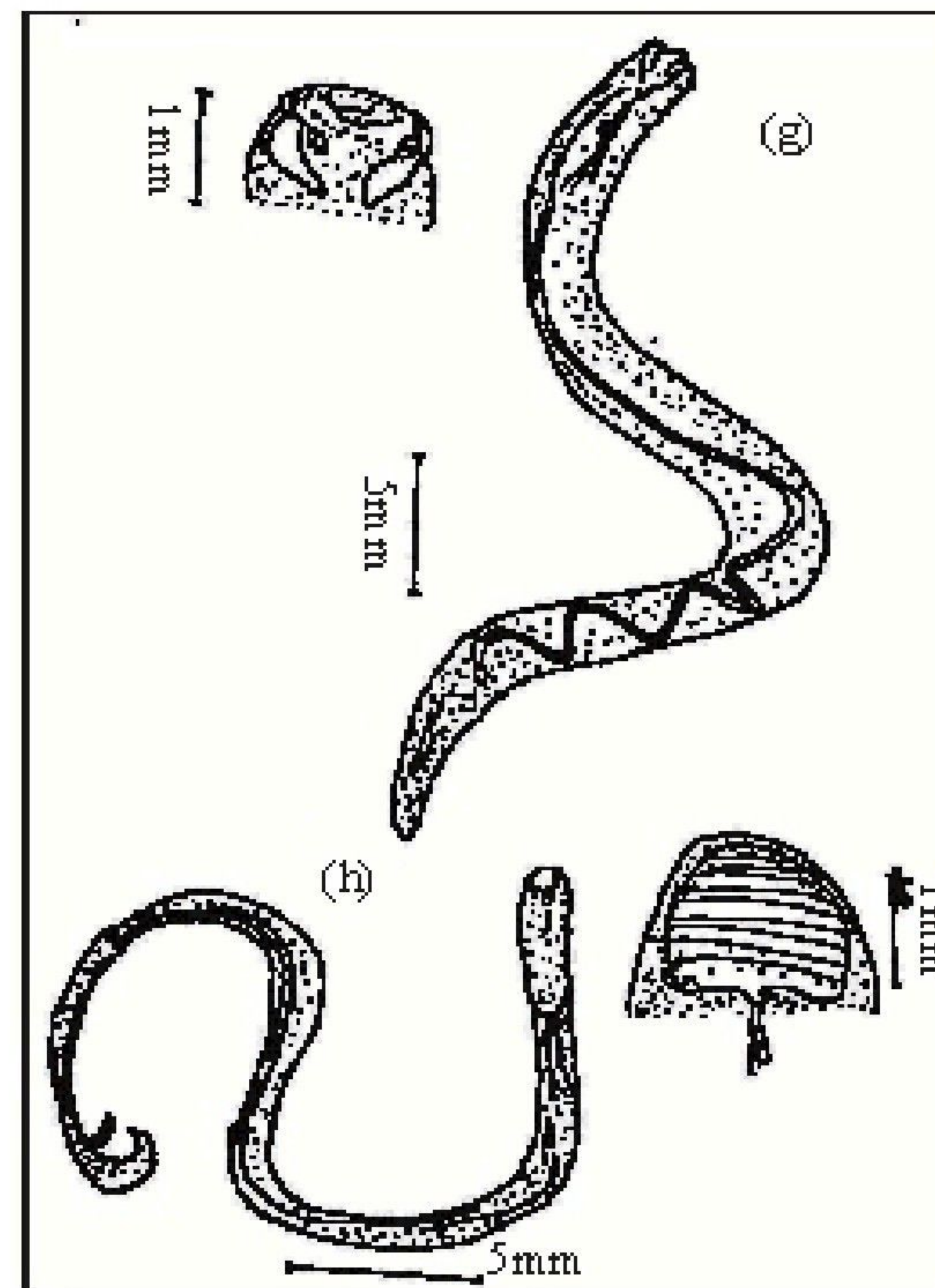
a. *Porrocaecum* sp,
b. *Rhabdascaris* acus



c. *Rhabdochona* sp
d. *Ascarothis* filiformis



e. *Camallanus* truncates,
f. *Hysterothylacium* sp



g. *Contracaecum* aduncum
h. *Cucullanus* annulatus

slightly posterior to nerve ring and extending up to the middle of the tile. Oral opening triangular, two lateral

amphids and four rounded submedian papillae visible. Boring tooth lacking. Excretory pore slightly posterior to

nerve ring .Oesophagus narrow small ventriculus slightly longer than wide. Intestinal caecum short. , ventricular appendage slightly shorter or slightly longer than oesophagus, tail long with six to eight terminal spines arranged in circle.

Contraecum aduncum (Fig. 2g)

Family: Ascaroidae (Ascaridata):

Genus: Contraecum:

Species: *C. aduncum* Rud: *Contraecum aduncum* are small sized nematode. Body 5 mm long and 1mm wide. They are distinguished from other forms by the development of strong lips. The esophagus consists of a muscular and a glandular part

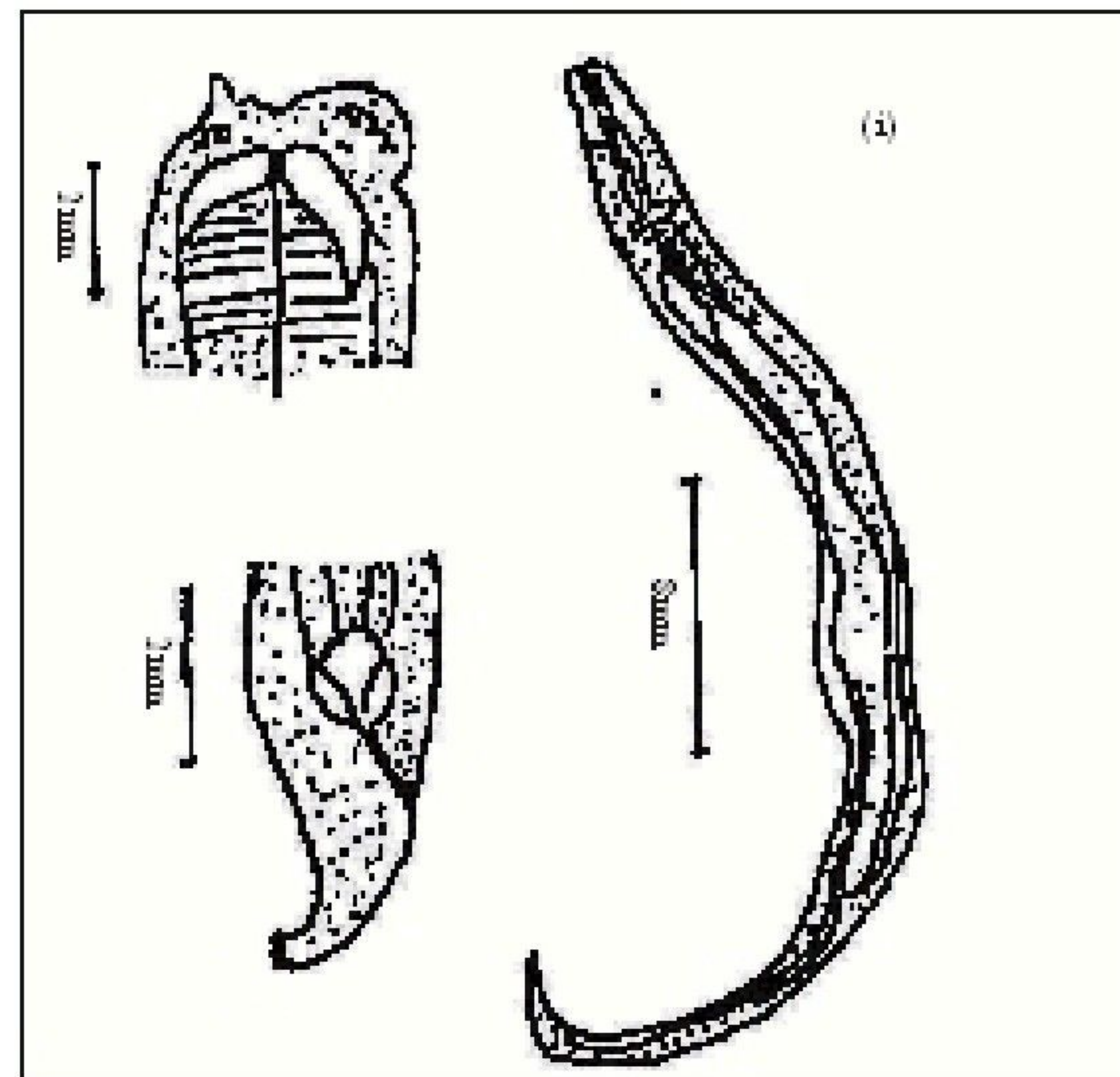
Cucullanus annulatus (fig. h)

The Cucullanidae have two large lateral lips bounding the slit like mouth and the large noncircular buccal capsule it typically embraced by the expanded anterior part of the pharynx. The pharynx differs from that of other spiruroids in being muscular throughout lacking a glandular portion. An intestinal caecum occurs in some genera. The females are oviparous with two opposed uteri in males a preanal sucker similar to that of the Kathliniidae is typically present. The principal genus *Cucullanus* found in the intestine of fishes and some times other cold blooded vertebrates lacks a caecum but is provided with a preanal sucker. There appear to be no members of this family.

Camallanides sp.(fig. i)

Family: Camallanidae: Body cylindrical buccal capsule divided into two lateral valves, each supported internally by about twenty longitudinal ribs. Some of them incomplete. Ribs on each valve, not separated by medio-lateral longitudinal band. Well sclerotized basal ring present. Two sclerotized rods present ventrally and dorsally. Muscular and glandular esophagus about same length. Tail conical ending in two equal processes. Excretory pore and genital anlagen not visible.

In the present study nematodes were recorded from the intestine of some marine fishes along parangipettai coast. A similar observation has been made by Petter and Sey (1997) reported the nematode parasites from Kuwaiti fishes. They have encountered eleven different types of ascaridoid larvae, two adult anisakids and nine other adult and larval species, which include *Cucullans trachinoti*, *Cucullanus armatus*, *Cucullanus sp*, *Camallanides sp* and *Ascarophis sp*. However in the present investigation record nine different nematodes were recorded which includes *Cucullanus anulatus*, *Ascraphis filiformis* and *Camallanides sp*. Soota and Dey (1981) dealt with ten species of nematode parasites in vertebrates from Dargiling district and reported one new species. Soota (1981) collected nematodes from several vertebrates, it includes thirty species belongs to twenty three genera, where as in the present investigation 10 species of nematodes were recorded which belongs to nine genera.



i. *Camallanides sp*

Bijukumar (1996) was reported a nematode *Hysterothylacium sp.* from flat fishes. Selvamathi (2004) studied the parasites of *Dendrophysa russelli* from Parangipettai coastal water and recorded two nematodes viz *Lappetascaris lutjani* and *Contraecum aduncum* and nine *Acanthocephalan* species. Rajamani (1972) studied the parasites of ribbon fish *Trichiurus lepturus* and reported two nematodes *Contraecum trichiuri* and *Porrocaecum sp.* In the present investigation out of ten nematodes studied eight species were recorded for the first time along Parangipettai coast.

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