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**A STUDY ON CAMALLANUS TRICHIURIS BASHIRULLAH AND RAHMAN, 1972
(NEMATODA: CAMALLANIDAE) OF TWO MARINE FISHES, *TRICHIURUS
LEPTURUS* AND *LEPTURACANTHUS SAVALA* FROM VISAKHAPATNAM COAST,
ANDHRA PRADESH, INDIA**

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ABSTRACT

The nematode *Camallanus trichiuris* is described from two marine fishes of the family trichiuridae, *Trichiurus lepturus* L. and *Lepturacanthus savala* (Cuvier) from coastal region of Bay of Bengal, Andhra Pradesh. These fishes are commercially valuable benthic-pelagic inhabiting continental shelves worldwide. In the present study, a total of 30 fishes (12 *T.lepturus* and 18 *L.savala*) were examined, of which four fishes (1 *T.lepturus* and 3 *L.savala*) were infected with female *Camallanus trichiuris* Bashirullah and Rehman, 1972.

Keywords: Nematode, *Camallanus trichiuris*, *Trichiurus lepturus*, *Lepturacanthus savala*,
Visakhapatnam

INTRODUCTION

In the present investigation, two marine fishes of the family Trichiuridae, i.e., *Trichiurus lepturus* and *Lepturacanthus savala* were taken for the study. The survey was conducted in Visakhapatnam of Andhra Pradesh. These fishes occur in continental shelf. The cutlass fish, *Trichiurus lepturus* L., is a cosmopolitan coastal species which

occurs throughout tropical and temperate waters of the world, between latitude 60°N and 45°S [1]. *Trichiurus lepturus* average annual yield in Andhra Pradesh is 10095 tons [2]. They found on muddy bottoms of shallow coastal waters. *Trichiurus lepturus* has high feeding plasticity [3]. A variety of prey has been presented in their diet including

pelagic and benthic species, i.e., large numbers of small fishes, zooplanktonic and benthic crustaceans and cephalopods [4]. High parasitic helminth diversity should be thus reasonably predicted. The cutlass fish is among the 6 species with the greatest volume of fishery landings in the world [5].

A total of 30 fishes (12 *T.lepturus* and 18 *L.savala*) were examined. Four fishes are infected. One nematode and a few juveniles were collected. Nematode belongs to family Camillanidae and this species was identified as *C.trichiuris*.

MATERIALS AND METHODS

The present study is concerned with a survey of helminth parasites of *Trichirus lepturus* and *Lepturacanthus savala*. The material for the study was purchased from Visakhapatnam Harbor area (longitude 83^o.27 E, latitude 17^o.70N).

Fishes were carried immediately to the laboratory. Fishes were identified; length, weight and sex of each fish were noted. Gills, stomach and intestine were examined separately for the collection of parasites. All the parasites found were first collected in saline water and then fixed. Nematodes were fixed in 70% hot alcohol and few drops of glycerin added (1:1). Temporary mounts of nematodes were made using glycerin and details were studied. The drawings were

drawn with the help of camera Lucida, measurements are given in microns. Scale is given in millimeters.

RESULT

Camallanus trichiuris

Host: *Trichiurus lepturus* and *Lepturacanthus savala*

Location: Intestine

Locality: Visakhapatnam

Description

Body small and medium sized, widens anteriorly and tapers down posteriorly. The cuticle has thin striations. The dorso-ventral slit-like mouth extends posteriorly across the cuticular basal ring of the buccal capsule and opens into the anterior part of the oesophagus into a depression. A pair of tridents is present. The dorsal and ventral tridents extend posteriorly from the lateral sides of the buccal capsule.

Oesophagus is divided into two portions, anterior muscular portion and posterior glandular portion. There is a pair of chitinised knob-like structures connecting the anterior end of the muscular oesophagus and the basal ring of the buccal capsule. One each side of the anterior end of the buccal capsule, a pair of chitinised lip-like structure is present. Longitudinal ridges are 37 in the buccal capsule (19 complete and 18

incomplete). The tail is long with a pointed tip.

Measurements

Female

The lengths of worm are 11.196 and 0.300 maximum diameter. The buccal capsule has a depth of 0.144 and a dorsoventral width of 0.156. The dorsal trident is 0.096 and the ventral trident is 0.060 in length. The diameter of the basal ring of the buccal capsule measures 0.096 in the length and thickness 0.024. The muscular part of the oesophagus is 1.332 long and the glandular part 1.320 long. The nerve ring lies at a distance of 0.600 from the anterior end, encircling the muscular part of oesophagus.

The tail length is 0.144 and ends in pointed end. The vulva protrudes slightly from the body surface and is situated at a distance of 3.180 from the anterior end. The vagina is 0.540 long, slender and muscular. It extends diagonally $3/4^{\text{th}}$ of the body before joining two branches of the uterus. Eggs are thin shelled and measures 0.024 in diameter.

DISCUSSION

Railliet and Henry, 1915, [6] has described the genus *Camallanus*, which possess bronze-colored, sclerotized buccal capsule. Yamaguti, 1961, [7] described altogether 19 species of which 5 species from India. The life histories of *Camallanids* have been

studied by Li, 1935, [8] Pereira *et al.*, 1936, [9]; Moorthy, 1938, [10] Campana-Rouget, 1961a, [11]; Moravac, 1969a, [12] and Stromberg and Crites, 1974a, [13] Bashirullah and Rahman, 1972, [14], have reported *Camallanus trichiuris* from Bay of Bengal at Cox's Bazaar, Bangladesh. All of the genera can be differentiated on the basis of buccal capsule structure. Yeh, 1960c, [15] emphasized the importance of buccal capsule in classification of *Camallanidae*. The presence of a dorsoventrally compressed sclerotized buccal capsule (not divided into anterior and posterior portions) with longitudinal ridges, a basal ring, and tridents place these worms in the genus *Camallanus*. Petter, 1979, [16] concluded that the number of longitudinal ridges lining the buccal capsule reflects evolutionary affinities in *Camallanus*. However in some species of *Camallanus*, e.g. *C.trichiuris*, the number of longitudinal ridges lining the buccal capsule varies not only between individuals but also with in an individual buccal capsule, being greatest in the anterior margin and decreases posteriorly. Thus when reporting the longitudinal ridges lining the buccal capsule, a measure of the variation observed in the number of longitudinal ridges, and what position on the buccal capsule they were counted, should be included. Seven species

of Camallanus with a single spicule have been reported from marine fishes of Indo-Pacific. *C.trichiuris* Bashirullah and Rahman, 1972, [14] *C.atropusi*, Bashirullah and Khan, 1973, [17], *C.chauhani*, Srivatsava and Gupta, 1975, [18] *C.purienis*, Srivatsava and Gupta, 1975, [18] *C.therapsi*, Srivatsava and Gupta, 1975, [18] *C.pentkotai*, Srivatsava and Gupta, 1976, [19] *C.trichiurisi*, Srivatsava and Gupta, 1976, [19]. The present specimen is referable to these species but differ (1) in body measurements, (2) trident length, (3) location of the nerve ring from the anterior end and (4) vulva position.

Visakhapatnam is the new locality record and this is the first report from India.

CONCLUSION

Since, marine fishes harbor a variety of parasites, the study of individual parasite in detail got much importance in the field of fishery science, so as to control their infection and to reduce adverse affects on human beings who consume these fishes. So further research has to be done in order to reduce their infection in commercially important fishes.

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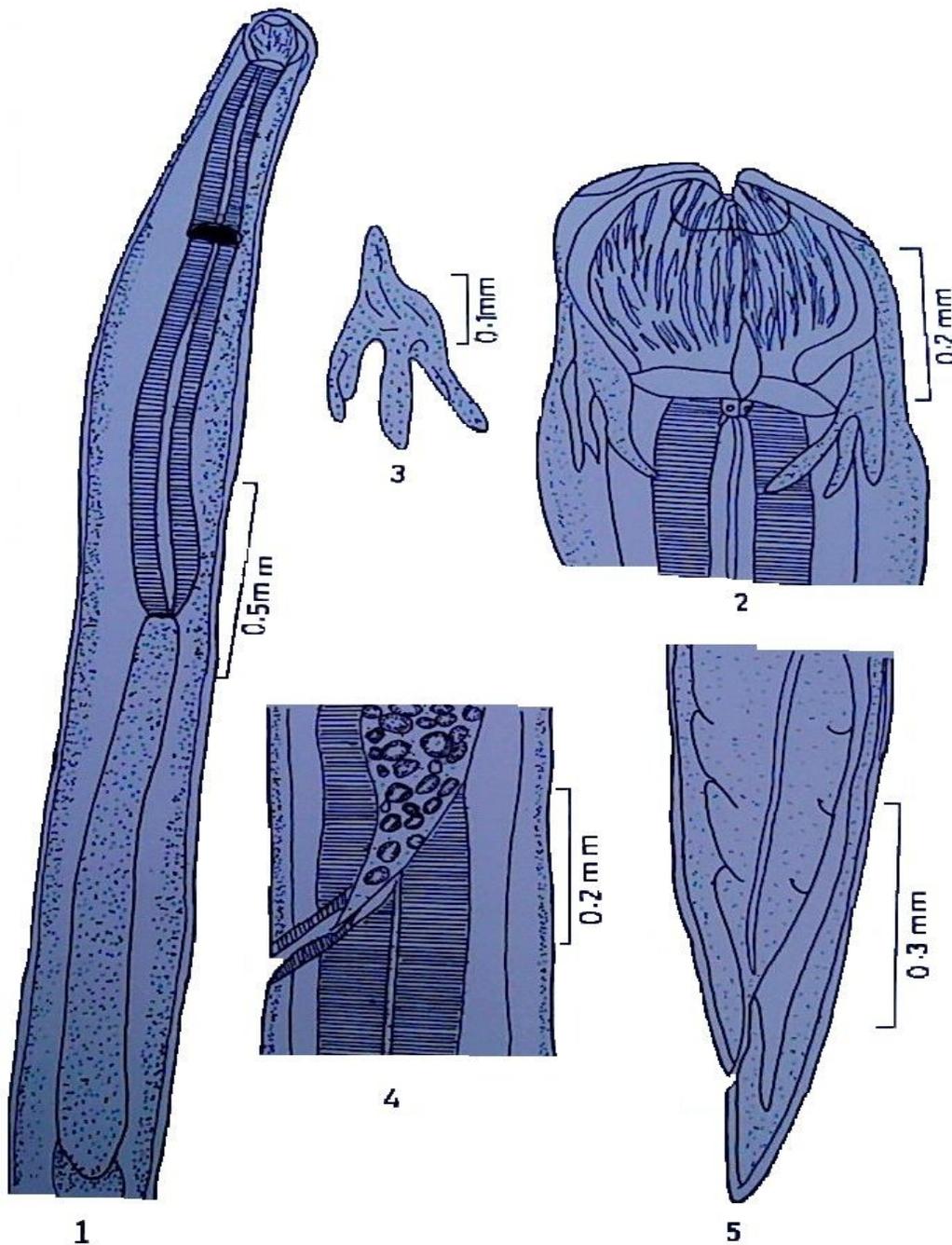


Figure 1: Anterior End of Female; Figure 2: Head Region – Enlarged; Figure 3: Trident – Enlarged
Figure 4: Vulvar Region – Showing Eggs; Figure 5: Posterior End of Female