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OCCURRENCE OF COPEPOD PARASITES IN *RASTRELLIGER KANAGURTA* FROM THE BHEEMUNIPATNAM, ANDHRA PRADESH, INDIA

Chantati Sita Ratnam[1] and *Manjulatha C[2]
Department of Zoology, Andhra University, Visakhapatnam–530 003
**Author for Correspondence*

ABSTRACT
The purpose of the present study is to estimate the copepod parasites in *Rastrelliger kanagurta* fishes. These species were collected from the Bheemunipatnam, Andhra Pradesh, India. In the present study 71 fishes were examined for the parasitic identification in which only twenty six parasites were identified which belongs to *Orbitocolax* genus. During this study only female copepods were identified.

Keywords: *Rastrelliger kanagurta, Orbitocolax, Copepods*

INTRODUCTION
Purivirojkul and Areechon (2008) conducted extensive survey on copepod parasites and their occurrence in marine fishes from the Chon Buri Province, the Gulf of Thailand. Rameshkumar, *et al.*, (2014) reported the presence of copepod parasites in Carangid fishes from coastal waters of Pranagipettai, Southeast coast of India. Alas *et al.,* (2015) studied about copepod parasites in 72 different fish species in which almost 62 different parasitic copepods were identified. Aladetohun, *et al.*, (2013) studied about the percentage prevalence of copepod parasites in Mugilidae fish species from West Africa. According to them there are three parasitic copepods were identified they are *Nipergasilus bora, Ergasilus latus and Ergasilus lizae*. The purpose of the present study is to estimate the occurrence of copepod parasites in *Rastrelliger kanagurta* which were collected from the Bheemunipatnam, Visakhapatnam, Andhra Pradesh, India.

MATERIALS AND METHODS
For this study the samples of *Rastrelliger kanagurta* were collected from the Bheemunipatnam. The collected samples were stored in ice box and transported to Department of Zoology, Andhra University for parasites identification. Before examination the weight, standard length, fork length was taken with the help of meter rule. Fishes were dissected carefully and the gills examined under light microscope. Identified copepod species were carefully removed from the host species with the help of fine forceps and were preserved in 70% ethanol until further examination. For copepod species identification the morphological features were compared with the standard reference material mentioned in Yamaguti (1963), Kabata (1979), Pillai (1985), Sirikanchana (2003), Ho and Kim (2004). A total of twenty six parasites belong to Orbitocolax genus has been recorded in 71 fishes.

RESULTS AND DISCUSSION
Orbitacolax aculeatus Pillai, 1962
Bomolocccchus aculeatus Pillai, 1962a:610.
Host: *Rastrelliger kanagurta* (Richardson).
Locality: Bheemunipatnam, East coast of Bay of Bengal, Visakhapatnam, India.
Location: Nasal sinuses of the host.
26 females obtained from 71 fish examined.
Male parasites are not available at the time of examination.
Description of the female*:* (Fig 1a)

The total body length of the specimen is 1.61mm and the width is 0.75mm. The cephalothorax is broder than long, measuring about 0.8mm x 0.9mm and the lateral borders are round. The rostrum is protruding between the bases of the first antennae. The second thorasic segment is as broad as cephalothorax, measuring about 0.4mm x 0.9mm. The third segment is narrower, measuring about 0.1mm x 0.9mm. The fourth segment is very narrow measuring about 0.08mm x 0.3mm when compared with the third segment. The fifth segment is broader than long, measuring about 0.07mm x 0.1mm but narrower than the fourth segment and the genital segment is equal in length and width.

The abdomen is 3-segmented measuring about 0.15mm x 0.05mm and the ventral surface is covered with spinules. The caudal rami is longer than broad, ornamented with one lateral seta, 2 subterminal and 3 terminal setae.

The first antenna (Fig-1b) is measuring about 1.0mm x 0.02mm, bearing 15 plumose setae and 6 naked setae present along the outer edge. The second antenna (fig- 1c) measuring about 0.9mm x 0.03mm consists of 6 rows of small hooks along the outer edge of second segment and 6 setae are present at the tip.

The maxilliped (fig-1d) is measuring about 0.9mm x 0.08mm, bearing unequal blades and the maxilliped is having three setae and the distal segment is produced backwards. The maxilliped is somewhat elongated and two small inner setae and curved stout claw are present on the second segment. It consists a hook which is bearing an accessory process.

The leg1 (Fig 1-e) which is biramous, bearing both exopod and endopod. The basipod bears two large patches of spinules. The endopod is broader than the exopod and having three segmented rami. The first and second segments of endopod, each one bearing one plumose seta and the third segment is beaing 5 plumose setae. The first segment of the exopod is bearing one small spine but without setae, the second segment consists of 6 plumose setae.

The leg 2 (Fig 1-f) is bearing both exopod and endopod, each one contains three segments. The exopod is broader than the endopod. The first segment of the exopod is bearing one plumose seta on the inner margin. The second segment is bearing two plumose setae, the third segment is having three plumose setae and one spine on the terminal margin. A row of spinules are present along the outer margins of all the three exopodal segments. The first, second, third segments of the endopod each ornamented with one pectinate spine on the outer margin. The third segment is bearing three long naked setae and one stout spine at the terminal margin.

The leg 3 (Fig 1-g) is biramous, each one is having 3 segments and both the rami bearing minute patches of spinules. The exopod is similar to that of leg 2. The first and second segments of the endopod, each with one inner seta, the third segment having two inner setae and two sub equal outer spines.

The leg 4 (Fig 1-h) is also biramous. Both the rami are of equal breadth and the 3 segments of both exopod and endopod with minute patches of spinules and two naked setae, one is longer.

The basal segment of leg 5 (Fig 1-i) is short and broad at distal end, with three large patches of spinules. One small spine is present on the basal segment and the distal segment is bearing two small spines and two long, slender setae.

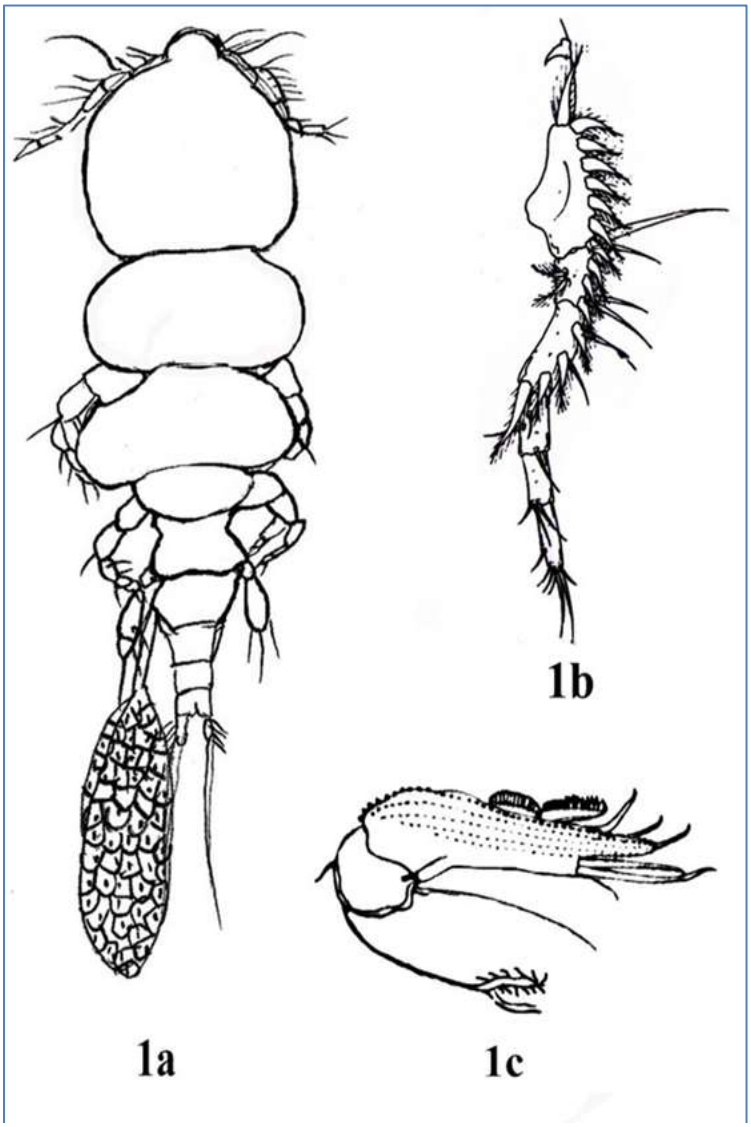
DISCUSSION

The genus *Orbitacolax* erected by Shen, 1957. In the overall shape of the body the specimen very closely resembles Pillai's description. But Leg 1 differs in having two patches of spinules on the basipod. Leg 2 as described by Pillai except exopod second segment with two setae rather than one. Leg 3 exopod similar to that of leg 2. Pillai shows no setae on the first and second segments and only one outer spine on third segment.

In spite of the above differences, our specimen resembles *Orbitacolax acueatus* (Pillai, 1962) in all other features.

Orbitacolax aculeatus

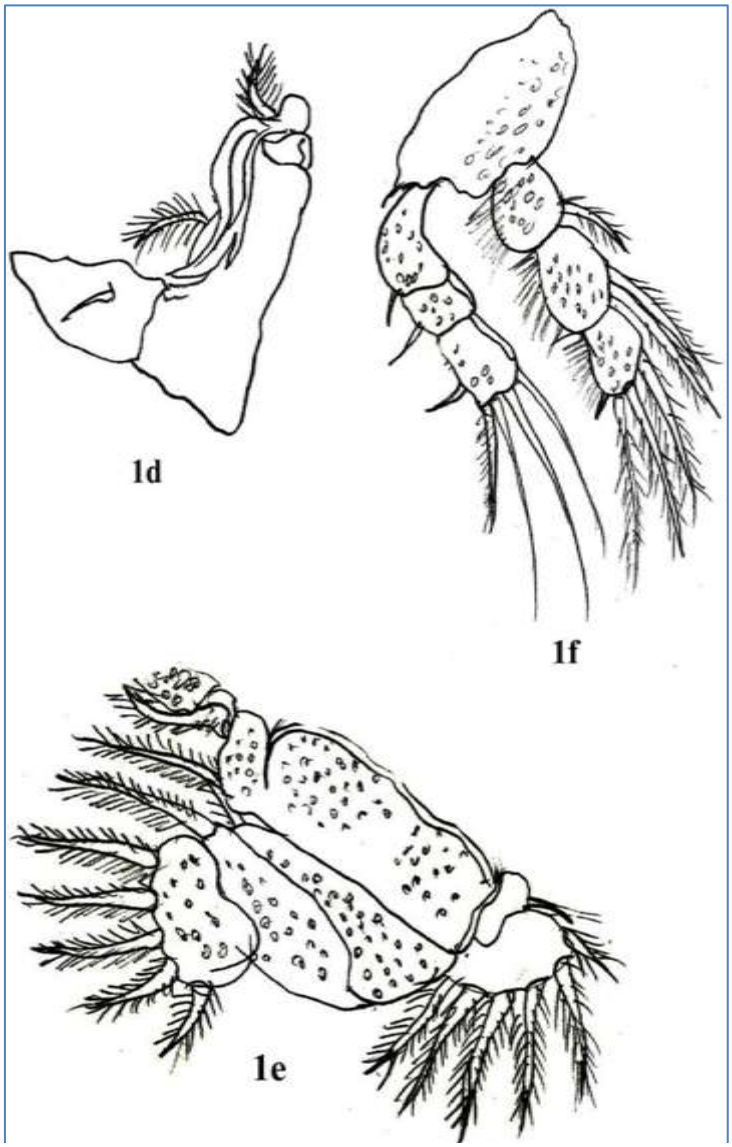
Fig
1a : Female
1b : 1st Antenna
1c : 2nd Antenna



Figures 1a 0.2 mm

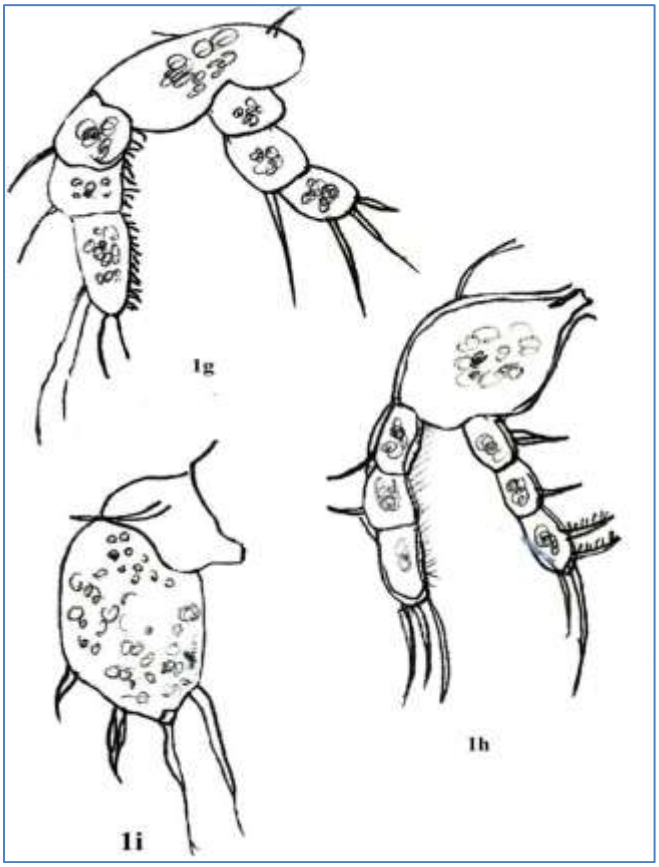
Figures 1b, 1c, 0.05 mm

Orbitacolax aculeatus
Fig
1d : Maxilliped
1e : Leg 1
1f : Leg 2



Figures 1d, 1e, 1f, 0.05 mm

Orbitacolax aculeatus
Fig
1g : Leg 1
1h : Leg 2
1i : Leg 3



Figures 1g,1h,1i, 0.05 mm

Conflict of Interest: *None*

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