Journal on New Biological Reports
JNBR 6(2) 82 – 85 (2017)

ISSN 2319 – 1104 (Online)

Published by
www.researchtrend.net

First Record of the polychaete *Cossura aciculata* from Indian Waters

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| **Received**: 06 May 2017 | **Accepted**: 15 June 2017 |

ABSTRACT

Reporting *Cossura aciculata* (Wu & Chen, 1977) from 100m depth of Arabian Sea, west coast (11.56.000 N 74.37.000 E) and 32m depth of Bay of Bengal, east coast of India (14.00.080 N 80.20.140 E) during cruise number 230 onboard, FORV Sagar sampada, January, 2005.

Key words: *Cossura aciculata*, Bay of Bengal, Arabian Sea, benthic, polychaetes.

INTRODUCTION

Cossuridae is a rare family of polychaetes found along Indian waters. They are usually found along coastal marine habitats and deep-sea areas. Eventhough there are a few earlier reports on cossurids from Indian waters (Fauvel, 1953; Joydas & Damodaran 2009; Ganesh & Raman 2007; Jayaraj et al. 2007; Manokaran et al. 2014; Jaleel et al. 2014) *Cossura coasta* is the only cossurid polychaete reported. This is the first report on *Cossura aciculata* from Indian waters.

It is very difficult to distinguish morphologically the various species of the family Cossuridae, since they do not have many distinct taxonomic characteristics. Some of the described species are very similar and differ by only a single feature (Zhadan, 2015). All the reports of *Cossura aciculata* are from coastal areas and most of them are reported from a maximum of 6m depth. But in this study *Cossura aciculata* (Wu & Chen, 1977) is reported from 100m depth of Arabian Sea, and 32m depth of Bay of Bengal.

MATERIALS AND METHODS

Samples for the present study were collected onboard Fishery and Oceanographic Research Vessel (FORV) Sagar Sampada, owned by Minisry of Earth Sciences, Government of India, during cruise number 230 from the Southwest and Southeast coast of India during 5th to 19th January 2005. Kannur transect was covered during the cruise number 233. In the southwest coast of India, the study area extended from latitude 11^{o} 59"N to 07^{o} 10"N and longitude 75^{o} 05"E to 77^{o} 19"E (Off Kannur to Cape Comorin, 7 transects) and in the SE coast from latitude 10^{o} 59"N to 14^{o} N and longitude 79^{o} 58"E to 80^{o} 24"E (Off Nagapatnam to Krishnapatnam, 4 transects). In each transect, sediment samples were collected from 30, 50, 100 and 200m depth ranges in order to study the depth wise variation of fauna. In the Kannur transect,

samples were collected from 50m and 100m depth only.

Sediment samples were collected for macrobenthos from each station by using Smith Mc-Intyre grab of $0.2m^2$ in area. It traps a substantial volume, even of dense sediment, as its open mouth covers a surface area of $0.2m^2$. Sediment samples for faunal analysis were sieved onboard by 0.5mm sieve and transferred to labeled bottles with 5% neutral formalin and Rose Bengal stain. In the laboratory faunal samples were analysed under a series of research microscopes and identified upto lowest possible taxonomic level with the help of standard references.

RESULTS

Systematic Account

Kingdom : Animalia
Phylum : Annelida
Class : Polychaeta
Subclass : Sedentaria
Infraclass : Scolecida
Family : Cossuridae
Genus : *Cossura* (Wu and Chen, 1977)
Species : *aciculata* **(Fig.1)**

Species descriptions
Cossura Webster & Benedict, 1887
Cossura aciculata (Wu and Chen, 1977)
Heterocossura aciculata (Wu and Chen, 1977)
Cossurella aciculata (Ewing, 1987)

Type locality: Krishnapatnam, Bay of Bengal, East coast of India and Kannur, Arabian Sea, west coast of India

Material examined: Krishnapatnam, Bay of Bengal, 1 specimen, east coast of India (14.00.080 N 80.20.140 E), January 2005, depth 32 m col. Smitha; Aarabian Sea, 6 specimen, 100m depth, west coast of India (11. 56. 000 N 74. 37. 000 E), 2006, col. Smitha, stained with Rose Bengal, preserved in 5% buffered Formalin.

Diagnosis: Complete specimen with about 60 chaetigers, about 12 mm long, 450 μm wide. Body is thread like in appearance and cylindrical in shape. Branchial filament inserted to anterior margin of third chaetiger. Segment 3 (first setiger) has single bundle of setae; with 4 upper, short, thick setae and 4 long, thin lower setae, but all subsequent upto 26^{th} setiger has 2 bundles. After 26^{th} setiger, bears only single pair of thick, stout acicular setae on either side of the setiger (Fig.2). Segments are broad and longer at posterior part compared to anterior region. Body regions were clearly distinguished; anterior region (thorax) with bundles of long capillary chaetae in both notopodium and neuropodium of parapodia, in abdominal region only one short acicular seta per ramus.

Anterior segments have glandular inflations divided by dorsal groove. Posterior segments longer, with thin, translucent body wall. Prostomium short, bluntly conical with round edge. Nuchal organs are not seen. Chaetiger 1 with uniramous parapodia, all the preceding segments with biramous parapodia. All chaetae in thorax hirsute capillaries with smooth shafts; arranged in two indistinct rows. In posterior-most segments, chaetae emerge from cushion-like body wall inflations. Pygidium divided into about 10 lobes, but without appendages.

Distribution: First record from Indian waters and it is from the continental shelf area. *Cossura aciculata* inhabits Yellow Sea, East China Sea and South China Sea (Wu & Chen, 1977). It is also reported from Philippines, Borneo and Bintulu (Similajau National Park), Sarawak (Zhadan 2015).

Remarks: First record from India. *Cossura aciculata* inhabits Yellow Sea, East China Sea, South China Sea (Wu and Chen 1977), Philippines, Borneo and Bintulu (Similajau National Park), Sarawak, (Zhadan 2015). Material cited in here extends the distribution of *C. aciculata* to the coast of India. Specimens from the present study differ from the original description by: 1) number of thoracic chaetigers indicated as 22 only in original description, but in our material three specimens have 22 chaetigers and one specimen has 23 and four specimen have 26 2) the number of chaetae in thoracic chaetigers is less than 10 in two specimens instead of 12–20 per ramus in the original description; 3) our worms are smaller (12mm vs 70–75) and have less segments (60 vs 100–112).

Other cossurid species bearing acicular chaetae in abdomen (previously grouped in the genus *Cossurella*, revised by Ewing, 1987) are *C. sima* Fauchald 1972 (28–29 thoracic chaetigers, abdominal spines accompanied by capillary chaetae), *C. pseudakaina* (Ewing 1987) (abdominal chaetae long tapering with thin plumose distal part), *C. dimorpha* (Hartman 1976) (29 thoracic chaetigers, branchial filament inserted between chaetigers 3 and 4), *C. pettiboneae* (Ewing 1987) (23 thoracic chaetigers, branchial filament inserted between chaetigers 3 and 4) (Zhadan 2015).

Fig.1. Polychaete, *Cossura aciculata*- Anterior region.

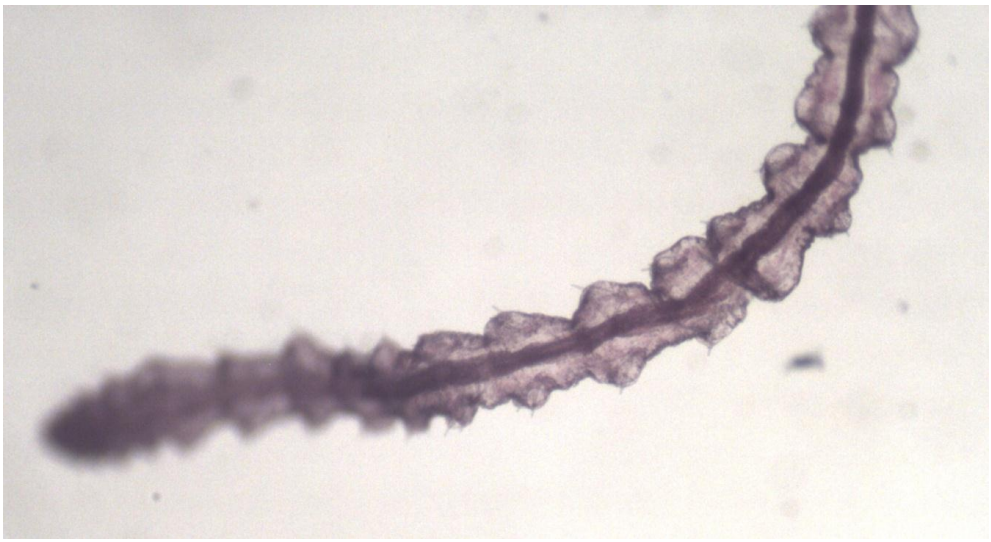

Fig.2. Polychaete, *Cossura aciculata*-Posterior region.

DISCUSSION

Almost 28 species are reported from the genus *Cossura* globally. Only one species, *Cossura coasta* was recorded previously from Indian waters. These are comparatively smaller worms of the group polychaete. Seven specimens of *C. aciculata* were obtained from Indian waters during the study. It is the first record of the species *Cossura aciculata* along coastal waters of India.

ACKNOWLEDGEMENTS

Authors are grateful to the Centre for Marine Living Resources and Ecology (CMLRE) scientific and technical support in the collection of samples.

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