FIRST RECORD OF *STELLICOLA* SP. (COPEPODA: LICHOMOLGIDAE) AND *LAETMATOPHILUS PARADURBANENSIS* (AMPHIPODA: PODOCERIDAE) PARASITIZING THE STARFISH *ANTHENEAA RUDIS* (ASTEROIDEA: OREASTERIDAE) FROM PAKISTAN

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Abstract: In a routine study of the coast on 20th Dec 2011, a large specimen of starfish *Anthenea rudis* Koehler, 1910 belonging to family Oreasteridae was collected from Buleji, Karachi (long 66°49' 12" E, lat 24°50' 12" N).

A species of an amhipod *Laetmatophilus paradurbanensis* Bano and Kazmi, 2004 and a copepod *Stellicola* sp. living as epizoics on the starfish were also observed and studied. This type of association is being reported for the first time from Pakistan.

A brief account of copepod species with comments on their association are given in the present paper.

Keywords: *Stellicola* sp; Starfish, Copepod, Pakistan.

INTRODUCTION

Many crustacean species live symbiotically on, in, or with other marine macroinvertebrates. Different relationships such as parasitism, mutualism and commensalism have been studied between several marine macroinvertebrate species and their crustacean symbionts (Castro, 1988). Among marine crustaceans, a wide variety of taxa, including shrimps, crabs, amphipods, isopods, and copepods have been reported as symbionts of macroinvertebrates. Among echinoderms, most known associations are with starfish. More than 11,500 valid copepod species are known, almost half of which live in symbiotic associations with nearly every animal group, ranging from sponges to chordates (Humes, 1994). Many of them are as common parasites of marine and freshwater fish and are known to be causative agents in finfish and shellfish aquaculture. Copepods are usually associated with sea stars (Asteroidea), frequently in tropical and sub-tropical seas. About 60 species of such copepods occur on sea stars (genera *Astericola*, *Stellicola*, *Symtellicola*). This symbiotic relationship makes jewellery art from the world’s living artists (Fig. 2).

Kazmi (2016) gave 55 Pakistani species of copepods among 189 crustaceans living in association with other organisms but did not find any record of a species living with
echinoderms from Pakistan. The genus *Stellicola* Kossmann, 1877 which is new record for Pakistani waters is identified basing on the microscopic photograph of this copepod collected from Buleji and is being reported. Unfortunately the slide is lost therefore it was not possible to determine the species.

The genus *Laetmatophilus* contains 11 species all over the world. *Laetmatophilus paradurbanensis* Bano and Kazmi, 2004, was found also as epizoic on the present *Anthenea rudis* Koehler, 1910 with the copepod *Stellicola* sp. Previously Kazmi and Naushaba (2000) reported this amphipod living on gorgonian branch, then Bano and Kazmi (2004) described in details same species as epizoic on a majid crab *Camposcia retusa* Latreille, 1829. Therefore only the copepod is briefly described.

**MATERIALS AND METHODS**

*Stellicola* sp. 1 female, 1 male. 
*Laetmatophilus paradurbanensis* Bano and Kazmi, 2004; 2 females, 3 males. These epizoic species were collected on body surface of starfish *Anthenea rudis* collected from Buleji, Karachi, Pakistan on 20th Dec 2011.

![Fig. 1.](image)

(A) *Anthenea rudis* Koehler, 1910, actinal view; (B) Same, abactinal view.

![Fig. 2.](image)

A female symbiotic copepod (*Stellicola* sp.) can be seen just to the left of centre on this sea star necklace (Internet image).
**Stellicola sp. (Fig. 3)**

*Description*

Body in both sexes with broad flattened prosome; ratio of length to width of prosome 1.06:1. Genital segment broad and flattened wider than long; three segments are postgenital in male. Egg sac elongate and stout.

**Colour:** Prosome transparent in both sexes, urosome pinkish, eggs yellow.

![Stellicola sp. (female and male)](image)

*Fig. 3. Stellicola sp. (female and male).*

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**(A) Laetmatophilus paradurbanensis**

![Laetmatophilus paradurbanensis (female and male)](image)

*Fig. 4. (A & B). Laetmatophilus paradurbanensis (female and male).*
DISCUSSION

Previously Kazmi and Naushaba (2000) reported *Laetmatophilus paradurbanesis* (as *Laetmatophilus durbanensis*) on a gorgonian (*Muricella*) branch with other associates (brittle stars, *Crenovolva*, *Pteria chinensis* and *Cyphocarcinus sargassum*). Later Bano and Kazmi (2004) recognizing it as new species *Laetmatophilus paradurbanesis* found it epizoic, on epibionts of the majid crab *Camposcia retusa*, in the present note a third host is discovered. The third author (Q.B.K.) tentatively identified the copepod, a cyclopoid genus *Stellicola* and consulted Professor Geoff A. Boxshall, Department of Life Sciences, Natural History Museum, London, according to him it was impossible to tell without a good view of the ventral surface – it is necessary to see the limbs before the genus can be identified with confidence. From existing records from similar hosts, it might be *Stellicola*, but that is a guess, considering how little work has been done in the Indian Ocean.

The genus *Stellicola* includes 19 species. Except few, all are associated with Asteroidea (Humes, 1995). The present specimens resemble to *Stellicola antheneae* Humes, 1995, *Stellicola hochbergi* Lopez-Gonzalez’ and Pascual, 1996, *S. feminineus* Humes and Ho, 1967 and *Stellicola pollex* Humes and Ho, 1967. There is a possibility of the present specimens may belong to a species new to science. Further collection is required to species of this genus which is being reported (described insufficiently) as new record of the genus from Pakistan described.

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LITERATURE CITED


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