A NEW RECORD OF SEA SPIDER ENDEIS MOLLIS (CARPENTER, 1904) (FAMILY: PYCNOGONIDAE: WILSON, 1878) OFF THOOTHUKUDI, SOUTHEAST COAST OF INDIA (08º 35' 22.5" N lat. 78º 27' 40.9" E long and 08º 31' 91.2"N lat. 78º 25' 32.7"E)

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ABSTRACT

A new record of sea spider, Endeis mollis (Carpenter, 1904) off Thoothukudi coast of Gulf of Mannar, southeast coast of India is reported. Endeis mollis species was newly recorded from Thoothukudi coast of Gulf of Mannar, southeast coast of India. One specimen was caught at the depth of 310 m as an incidental by-catch. It was found in tropical waters from about 08º 35' 22.5" N lat. 78º 27' 40.9" E long and 08º 31' 91.2"N lat. 78º 25' 32.7"E/310 m from Thoothukudi fishing harbour, southeast coast of India.

Keywords: Pycnogonidae, Endeis mollis, First record of Thoothukudi coast of Gulf of Mannar

INTRODUCTION

The Pycnogonida (Gr. Pyknos = crowded; gony = knee), commonly called as sea spiders, are a distinct group of marine arthropods of uncertain affinites, frequently linked to the Chelicerata (Snodgrass, 1938, Firstman, 1973; Manton, 1977; Weygoldt, 1986; Wheeler et al., 1993; Zrzavy et al., 1997; Wheeler and Hayashi, 1998; Edgecombe et al., 2000; Giribet and Ribera, 2000; Regier and Shultz, 2001). The unique and conscpicuous characteristics of pycnogonids, including an external proboscis, an additional pair of appendages (called ovigers), and the reduction of the abdomen to a peg-shaped vestige, have caused controversy and made it difficult to relate them to any other arthropod group (Boudreaux, 1979; Ax, 1987). Ecologically, sea spiders are essentially marine benthic dwellers that occur from the shoreline to abysmal depths in all the seas around the world. They range in size from tiny midgets having leg spans of only 2 mm, to deep-sea giants with leg spans of up to 75 cm; the larger species are usually found at deeper habitats. Sea spiders are mostly epibenthic and carnivorous, some species have been described in parasitic associtations with hydroids, molluscs and echinoderms (Arnaud and Bamber, 1987). Taxonomic descriptions of new species are sitll the most common type of publication on sea spiders.

The Phylogenetic affinites among the extant families of pycnogonids: Ammotheidae, Colossendeidae, Callipallenidae, Nymphonidae, Phoxichilidiidae, Pycnogonidae, Austrodecidae, Rhynchothoracidae, and the position of problematic genera such as Endeis, Pallenopsis and Tanystylum, are uncertain. Some 1163 living pycnogonid species of nine or ten

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families have been described which are occurring from the shoreline down to deep water. Many aspects of their biology have been summarized by King (1973) and Arnaud and Bamber (1987), and the group as a whole is characterized by a suite of putative autapomorphies. These include a prominent food-gathering proboscis, modified egg-carrying limbs called ovigers, multiple genital openings on the proximal leg articles and a general trend towards either reducing organ systems or displacing them into the legs. Recent work has witnessed a renewed interest in pycnogonids and, in particular, their position within the Euarthropoda (Dunlop and Arango 2005). In Indian waters, only 17 species were reported (Calman, 1923). Daniel and Sen (1975) made a comprehensive work on Indian Pycnogonids based on the available collections of the Zoological Survey of India. Other studies from the Indian region include Calman (1923), Kurian (1948, 1953), Rajagopal (1963) and Krapp (1996). However, most of the previous studies in Indian waters are mainly restricted to the taxonomy and species description. The temporal distribution pattern of pycnogonids is virtually unknown from the Indian waters. Earlier records of Endeis mollis in the Indian region are from the Andaman Nicobar Islands (Tikadar et al., 1986) and Madras coast. Endeis mollis has been also recorded in the Indian Ocean region from Sri Lanka (Bamber and El-Nagar, 2007; Veena et al., 2008; Satheesh and Wesley, 2012). Moreover, the most of the information on pycnogonids in Indian waters is scattered as short reports. In this paper, we report the occurrence of a pycnogonid Endeis mollis Carpenter (1904) in association with aphroditids at a depth of 310 m, Thoothukudi coast of Gulf of Mannar. Further investigations are also needed in the adjacent Gulf of Mannar Biosphere Reserve to know the details on the ecology as well as taxonomy and biogeography of these peculiar arthropods.

TAXONOMY

Superfamily: Pycnogonoidea (Wilson, 1878) (Pocock, 1904)

Family: Pycnogonidae Wilson, 1878

Genus: Pycnogonum, Brunnich, 1764

Endeis mollis (Carpenter, 1904) (Fig. 1)

Endeis mollis Carpenter, 1904: 182-183, figs. 1-7,

Stock, 1968: 58 – 59

Daniel and Sen, 1975:

Calman, 1923: 265-299

Kurian, 1953: 746-775

Rajagopal, 1963: 235-238

Krapp, 1996: 521-529

Child, 1979: 66

Tikadar, 1986:

Bamber and El-Nagar, 2007:

Veena, 2008: 17-22, fig.3

Satheesh and Wesley, 2012: 73-78

MATERIAL EXAMINED

The specimen was 2.3 cm in total length and 1.1 cm wide (Fig. 1) collected from Thoothukudi fishing harbour between 08º 35’ 22.5” N lat. 78º 27’ 40.9” E long and 08º 31’ 91.2”N lat. 78º 25’ 32.7”E long at a depth of 310 m, Thoothukudi district, Tamil Nadu, India (Fig. 1). The reference materials are deposited in the museum collections of the Department of New Drug Discovery, RARBIO Energies Private Limited, Chennai, Tamil Nadu, India

DESCRIPTION

Trunk 2.3 mm in length, 1.1 mm wide, fully segmented, elongate shape. The specimen shows two chalky white dorsal lines from base of ocular tubercle to base of abdomen, white stripes along the legs contrasting with spotted green-coloured diverticula, even after preservation. Ovigers seven-segmented, second segment longest, single spinule on segments six and seven. Legs long, smooth, femur and tibiae subequal, 1 distal spines on first coxa, femur slightly swollen distally, tarsus very small with few spines; propodus cylindrical, blunt, distal margin with four spines, without heel, three heel spines, 9-10 sole spines well-developed; auxiliaries longer thatn half length of claw. Cement glands 22-24 pores distributed in lateral single row on femur.

DISTRIBUTION

First described from the Gulf of Mannar, Endeis mollis is now known as a circum-tropical species being common in the Indo-west Pacific and the Caribbean. The species has been collected as far as Thoothukudi coast of Gulf of Mannar, Southeast coast of India. Earlier records of Endeis mollis in the Indian region are from the Andaman Nicobar Islands (Tikadar et al., 1986) and Madras coast. Endeis mollis has been also recorded in the Indian Ocean region from Sri Lanka (Bamber and El-Nagar, 2007; Veena, 2008; Satheesh and Wesley, 2012). Other studies from the Indian region include Calman (1923), Kurian (1948, 1953), Rajagopal (1963) and Krapp (1996). The present record from Thoothukudi coast in Gulf of Mannar extends its distribution to the southeast coast of India.

REMARKS

Examining reports and museum samples of E. mollis we notice some ambiguity differentiating E. mollis and E. meridionalis. Endeis mollis was described by Carpenter (1904) as a smooth species, more glabrous and less spiny than E. meridionalis. The latter has a strong spine on mid femur, small spinules on the collar and the second tibia is subequal to the femur Carpenter, 1904; Stock, 1965).

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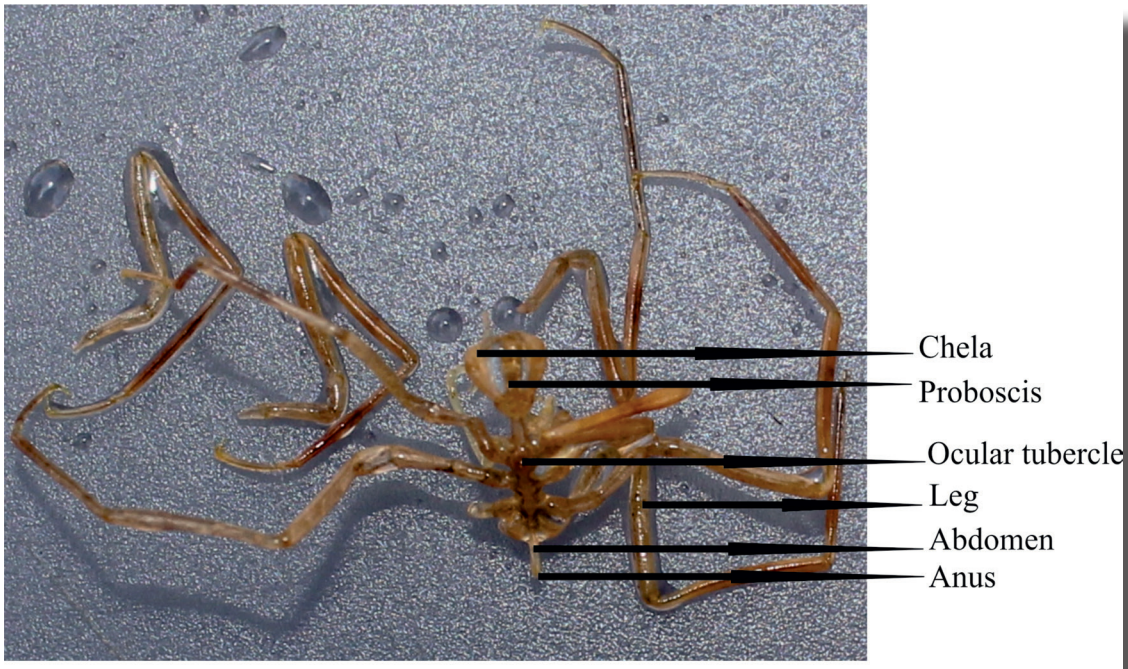

Fig.1: *Endeis mollis* (Carpenter, 1904)