



Short Communication

First record of *Carapus mourlani* (Petit, 1934) (Actinopterygii: Ophidiiformes: Carapidae) in *Holothuria fuscogilva* (Cherbonnier, 1980), (Holothuriidae) from Pazhayar, South East Coast of India

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Abstract

Pearl fishes are known to live inside the body cavities of various species of holothurians in different parts of the world. In the present study, to record the presence of Pearl fishes in the body cavity of the sea cucumber *H. fuscogilva* (Cherbonnier 1980) from Pazhayar, south east coast of India. 15 holothurian specimens were collected from trash fishery of Pazhayar landing center and dissected to examine the presence of fishes in their body cavities. Of the fifteen individuals of *H. fuscogilva* were examined, only one was found having pearl fish *C. mourlani* inside the body cavity, which was 7.5cm long and weighed 0.35g. The association of the sea cucumber and the pearl fish was recorded for the first time from India.

Key Words: Pearl fish, Carapidae, Holothuria, South East Coast, Commensalism, bêche-de-mer.

Introduction

Sea cucumbers are present in most of the seas and oceans mainly in the South-Pacific, Indian Ocean and South East Asia. *Holothuria fuscogilva* is one of the commercially abused species all over its range and also having maximum value as bêche-de-mer for fisherman to supply the Asian traders around the world Conad (2013). In Cook Islands Survey of Manus Province (PNG) (2006) showed that most *Holothurian* species from shallow waters were exhausted, but *H. fuscogilva* still showed reasonable numbers in deeper waters (Kinch et al. 2008), and also IUCN declared the status of the species *H. fuscogilva* as vulnerable (<http://www.iucnredlist.org/details/200715/0>).

Symbiotic relationship can occur in the marine environment among the different species which take place in various forms like commensalism, mutualism and parasitism (Eeckhant 2003). It has been observed that Echinoderms act as hosts for more than 800 species (Lyskin and Britar 2005). Among that, Holothuriidae has the maximum number of associations (Eeckhant et al. 2004). Members of Holothuriidae and pearl fishes have been recorded as the most preferred in shallow waters (Parmentier et al. 2002).

Pearl fishes Carapini are known for their ability to establish relationships with different invertebrates including bivalves (Castro-Aguirre 1996; Parmentier 2016), Asteroids (Glynn et al. 2008) and Holothurians (Parmentier 2016).

This *C. mourlani* has been found in all the Pacific Ocean, from Africa to South America (Glynn et al., 2008). In the central to Western Indo-Pacific it is recognized to inhabit the Asteroids (Markle and Olney 1990; Glynn 2008). *C. mourlani* (Petit 1934) was reported from Eastern Pacific inhabiting the sea cucumber *Isostichopus fuscus* (Parmentier et al., 2006). Juvenile of *C. mourlani* that has been already found in India but there is no record. Hence, in this present study the presence of *C. mourlani* (Petit 1934) was recorded for the first time from Pazhayar, South East Coast of India.

Materials and Methods

During our monthly sample collection, on 24 Sep 2016 unexpectedly we found 15 Holothurians only from trawl-by-catch of Pazhayar landing center (11°21'N; 79°50'E), south east coast of India. Collected specimens of sea cucumber were transferred to the laboratory by using ice-box and identified by using traditional characters with taxonomical keys (Uthicke et al. 2004; Steve Purcell et al. 2006). Each holothurian

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was dissected by using sterile dissecting scissor for observing the presence of pearl fish and the collected pearl fish was preserved in 70% alcohol for further study.

Results and Discussion

Classification

Family: Carapidae

Subfamily: Carapinae

Genus: *Carapus*

Species: *Carapus mourlani* (Petit, 1934)

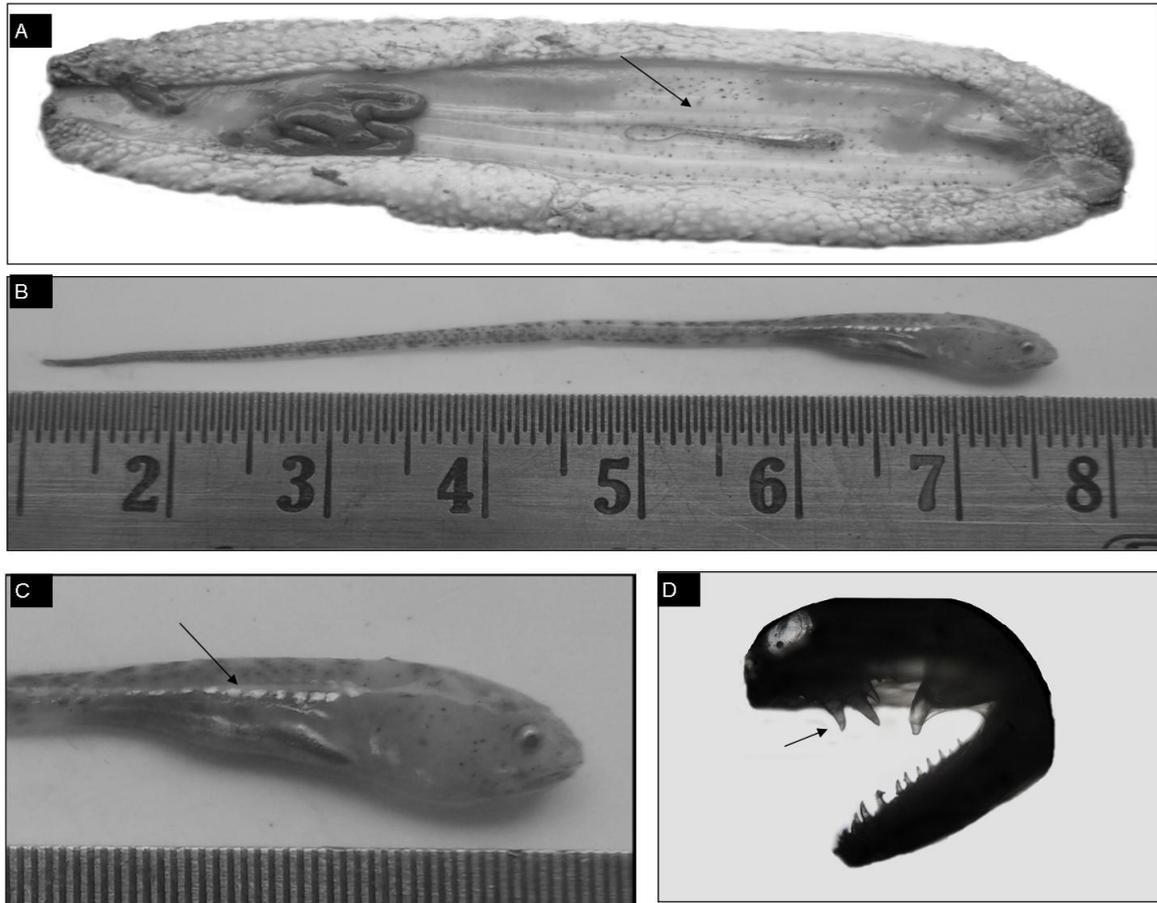


Figure 1A: *H. fuscogilva* with live *C. mourlani* (18cm; 25 g; sex unknown), B: *C. mourlani* (length 7.5cm) an individual from Pazhayar, south east coast of India, C: Showing the silvery patches in *C. mourlani*, D: Microscopic view of teeth of *C. mourlani*.

Among the 15 *H. fuscogilva* dissected, only one (18cm; 25 g; sex unknown.) was having a live pearl fish *C. mourlani* in its body cavity (Figure 1A); and length and weight of pearl fish were recorded as 7.5cm and 0.35g respectively. It had a slender, elongated, scale less body with long dorsal fin and anal fin met at the point of the tail edge. González et al. (2014) recorded the length and weight of pearl fishes from South eastern Spain ranging from 7.0 to 21.5cm and 0.28 to 16.78g respectively. Hence, the present specimen could be a juvenile (Figure 1B).

Carapus mourlani seems in the position like faced towards anterior and tail towards posterior sides on the rows of tube feet in the *H. fuscogilva* (Figure 1A).

Colour in the live fish was translucent, highly pigmented with melanophores and 19-24 silvery patches were found in the abdominal and myotome segments of the body (Figure 1C) with mucous and after preservation not visible. A silvery patches were observed on lateral side of the fish and a swim bladder with pseudo-chambers separated by a constriction under vertebrae 9-10; precaudal vertebrae 16. The vertebrae were counted by using the light microscope (Magnus MLX-Dx). *C. mourlani* has rounded snout, free and movable maxilla, strong conical teeth in lower and polyserial and three strong conical teeth are present in the middle of the upper maxilla, outer row of lower maxilla teeth are large conical and slightly curved, inner teeth are small (Figure

1D). The dental arrangements, location of pseudo-chamber and vertebral count was found out the confirmation of species as *C. mourlani* (Petit, 1934; Markle and Olney 1990). Parmentier (2005) observed the pattern in the pearl fish which was about to enter into the host by swimming. Parmentier (2005) observed the behavior of penetration of the *Carapus* into the holothurian. Hence, its behavior was observed putting it in a small beaker having sea water that it is the fish was found as active swimmer and it swims with its head facing downwards and upwards for finding any objects and sometime it touches bottom of the beaker with the head (own observation).

Conclusion

This study confirms the occurrence of *Carapus mourlani* inside the body cavity of *H. fuscogilva* from Pazhayar, south east coast of India.

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