

A new record of parasitic isopod for the Indian fauna (*Mothocya karobran* Bruce, 1986) from *Strongylura strongylura* in the Pazhayar region, Southeast coast of India

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Abstract Cymothoid isopods are permanent ectoparasites of fish. In the present study *Strongylura strongylura* captured in gillnets from the inshore waters of Pazhayar from January to March-12. Among the 122 Belonidae fishes examined, 16 specimens were parasitized by isopods belonging to the species *Mothocya karobran*, a new record of this cymothoid isopod for the first time from India. Lowest prevalence occurred in January (10.5 %) and the highest in February (15.9 %). The infected fishes usually carried one cymothoid per branchial cavity. 12 parasites were found in the left branchial cavity and 4 parasites in the right. The non ovigerous female (18.5–24.7 mm) and female ovigerous (20.8–27.4 mm) in total length.

Keywords *Mothocya karobran* ·
Strongylura strongylura · Parasitic isopod · Pazhayar ·
New record

Introduction

Parasitic isopods are like common group of crustacean ectoparasites of fish in marine ecosystem. Among the isopod crustaceans, species belonging to the family Cymothoidae are of special interest, because their hosts are fishes of commercial importance. Cymothoid isopods are large ectoparasite groups that infest a diverse array of tropical

and temperate marine and freshwater fishes worldwide (Brusca 1981). They feed on host blood and tissue, as well as inducing tissue damage due to the mechanical pressure of the parasites body (Trilles and Galzin 1969; Rameshkumar and Ravichandran 2013a). Cymothoids have been reported as ectosymbionts on a wide variety of host spp., mostly fishes (as summarized by Bunkley-Williams 1984).

Genus *Mothocya* was described firstly by Costa (1851), while Schioedte and Meinert (1884) described a similar genus, *Irona*, without considering the genus *Mothocya* and according to (Monod 1971). The genus was not considered problematic other than uncertainty over the validity of the genus *Irona* (Monod 1923; Trilles 1968; Monod 1971). It is found in the various areas of India, *Mothocya plagulophora* reported from Chennai, Mandapam Camp (Bruce 1986), Paragipettai coast (Ravichandran et al. 2011), *Mothocya renardi* from Cochin, Palk Bay, Pondichery (Bruce 1986), Parangipettai (Rameshkumar and Ravichandran 2013b) and *Mothocya* sp from Parangipettai (Rameshkumar et al. 2013) and it mainly parasitizes the gill chamber of atherinomorph fishes of the families Hemiramphidae and Belonidae. Therefore, the present investigation was carried out to record the *Mothocya karobran* in *Strongylura strongylura* from the Pazhayar, with reference to its prevalence, location on the host, abundance and the intensity of the infection.

Materials and methods

Samples of freshly landed Belonidae fishes *Strongylura strongylura* captured in gillnets from the inshore waters of Pazhayar (Lat 11°21'32.27" N; long 79° 49'24.92" E Southeast Coast of India) from January to March-12 were collected and transported to the laboratory for the study. It is a seasonal species occurring particularly during the months.

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The fishes were weighed, measured, and investigated for the presence of isopods with the help of a dissecting microscope. Parasites were extracted from the gill region and were subsequently relaxed in hot saline solution. They were fixed, conserved in 5 % formalin and stored in 70 % alcohol. The isopod parasites were identified according to (Bruce 1986). The taxonomic classification of the Indian Belonidae fish host was carried out following Froese and Pauly (2012). Prevalence, mean intensity, site location, attachment site, number of isopods per fish, total length of the fish hosts and isopods parasites were measured.

Results and discussion

During the present study including 122 numbers of Indian Belonidae, (average size 127 mm in length and 216 g in weight) were examined for presence of isopods. Among the 122 Belonidae fishes examined, 16 specimens were parasitized by isopods (Table 1) belonging to the species *Mothocya karobran*. In the present study, a new record of this cymothoid isopod *M.karobran* for the first time from the Pazhayar coast.

The overall mean prevalence of *M. epimerica* Costa, parasitizing *Atherina boyeri* in the Mesolongi and Etolikon Lagoons, Greece (41.91 %) (Leonardos and Trilles 2003) was higher than that found, for the same species, by Bello et al. (1997) in the Lesina Lagoon, Italy (7.7 %) and for *M. plagulophora* infecting *H. far* (14.7 %) in India (Ravichandran et al. 2011). In the present study the lowest prevalence occurred in January (10.5 %) and the highest in February (15.9 %). The mean intensity was calculated 16 parasites in 16 infected fish = 1. A total of 16 parasites were recovered from the host branchial cavity; 12 parasites were found in the left branchial cavity and 4 parasites in the right.

The infected fishes usually carried one cymothoid per branchial cavity. The parasite was attached to the internal wall of the branchial operculum with its claw-like pereopods (Fig. 1). This preference might be attributed to genetic or environmental differences (Bello et al. 1997). The affected operculum did not show any obvious effects compared to noninfected ones. Such an infestation may induce the death of the fish. Permanently attached adults parasites stunt the growth of fish and retard reproduction process. Parasites in the gill chamber usually lead to stunted and anaemic gill conditions. Isopod infections can lead to severe economic loss in culture operations (Bragoni et al. 1984). The non ovigerous female (18.5–24.7 mm) and female ovigerous (20.8–27.4 mm) in total length (Fig 2). Male specimens are not found in this study. This species can be immediately recognized by the acute lateral margins of the pleonites, relatively long uropods with a

Table 1 Occurrence of *Mothocya karobran* according to different months (January-12 to March-12 months)

Months	No. of fishes examined	No. of fishes infested (Prevalence)	No. of parasites collected (Mean intensity)
January-12	38	4 (10.5)	4 (1)
February	44	7 (15.9)	7 (1)
March	40	5 (12.5)	5 (1)
Total	122	16 (13.1)	16 (1)



Fig. 1 Adult ovigerous females (*M.karobran*) attached in the gill region of *S.strongylura*



Fig. 2 Dorsal and ventral view of *M.karobran*

slender endopod, and the rectangular appearance of the posterior coxal plates (Bruce 1986).

M.karobran is primarily associated with fishes belonging to the families of Belonidae. previously it was reported from reported (Bruce 1986) from the host of *Strongylura gavioloides* and two specimens from *Strongylura leiura*,

these being amongst a series of about 60 *Mothocya renardi*, suggesting that *S. leiura* is not the normal host of *Mothocya karobran*. In the present study the following species are newly recorded as hosts from *S.Strongylura*. In India, within this group there are recognizably related species *M.plagulophora* was collected from the *Hemiramphus far* (Bruce 1986; Gopalakrishnan et al. 2010; Ravichandran et al. 2011) *M.renardi* from *Strongylura leiura* and *Tylosurus crocodilus* (Bruce 1986; Rameshkumar and Ravichandran 2013b) *Mothocya* sp. (Rameshkumar et al. 2013). *M.karobran* are found in the Eastern and northern Australia, from Lake Macquarie, New South Wales, along the Queensland coast (mainland and Great Barrier Reef) to the Northern Territory; one record from Pakistan, northern Indian Ocean and now its range is extended to Pazhayar, Southeast Coast of India.

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