

Observation on an isopod parasitizing the edible fish *Parastromateus niger* in the Parangipettai coast of India

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Abstract

Cymothoidae are big parasites on fishes and often they are host specific. This study reports that in India, the Black pomfret (*Parastromateus niger*), a highly edible marine fish belonging to the family Carangidae, is the type host of *Cymothoa eremita* (Isopoda, Cymothoidae). Among one hundred and sixty fish examined from April to July, 2010 in Parangipettai coastal waters, only three female specimens were infested in June, 2010. It seems that such parasitism depends particularly on the season and on the host sex.

Key words

Parastromateus niger, *Cymothoa eremita*, Crustacea, Cymothoidae

Introduction

Parasitic diseases currently constitute one of the most important problems in the fisheries. Several parasitic isopods inflict large wounds, often stunt the growth and occasionally kill the host fish. Many cymothoid species settle in the buccal cavity of fishes with their head facing out of the mouth of the fish host (Trilles, 1994; Bunkley-Williams and Williams, 1998). Occurrence of female isopods belonging to the genus *Cymothoa* in the buccal cavity of some fish hosts was often reported (Thatcher *et al.*, 2003a,b, 2007; Thatcher and Fonseca, 2005; Bunkley-Williams *et al.*, 2006; Ravichandran *et al.*, 2007; Bariche and Trilles, 2008).

Several parasites, including Cymothoidae, were reported from dolphins (Dyer *et al.*, 1997a,b; Bunkley-Williams and Williams, 1998; Williams and Bunkley-Williams, 2009, 2010). *Cymothoa eremita* was first collected from Madras in the mouth of *Coryphaena apus*. Eschmeyer (1998) provisionally accepted this species as an unspecified dolphin and later Eschmeyer and Fricke (2008) suggested

that it was certainly a synonym of *Coryphaena hippurus*. Recently, Oktener (2008) reported *Cymothoa eremita* as a parasite of dolphin, *Coryphaena apus*, in a list of dolphin parasites. However, until now, associations of *Cymothoa* species with dolphins are not clearly identified. This has always made suspect that the type host of *Cymothoa eremita*, *Coryphaena apus*, was not a dolphin as recently suggested by Williams and Bunkley-Williams (2009). Therefore, using new collected specimens, it was useful to check accurate identification of the Indian specific host of *Cymothoa eremita*.

In this article, we reported the species *C. eremita* from the buccal cavity of the marine fish *Parastromateus niger*, belonging to the family Carangidae, from the southeast coast of India.

Materials and Methods

One hundred and sixty Black pomfret landed along the Parangipettai coast (11° 29' N, 79° 96' E) were examined from April to July, 2010. The buccal cavities of fish were examined carefully

for the presence of cymothoid isopods. The size of examined fish ranged from 100 to 150 mm in standard length and from 140 to 150 mm in the infested fish. Out of total specimen analysed, 75 were male specimens and 85 were females. Parasite sizes ranged from 26 to 28 mm. The collected parasites were removed, sexes were recorded, immediately preserved in 70% ethanol and labelled. They were identified according to Bowman and Tareen (1983) and Trilles (1994).

Results and Discussion

Among the 160 Black pomfret examined, 3 specimens were parasitized by isopods (Table. 1) belonging to the species *Cymothoa eremita*. These cymothoids were attached in the buccal cavity of the Black pomfret, *Parastromateus niger* (Carangidae), with *Coryphaena apus* as main synonym. The parasite was attached in such a way that its broader posterior part was lodged in the wider portion of the floor of the buccal cavity and its narrow anterior part either located towards the mouth or protruding from the mouth. Some small open sores in the buccal mucosa suggested that the dactyli of the pereopods of the parasite penetrated deeply in to the host tissue. Among the *Cymothoa* species until now identified, *Cymothoa eremita* is comparatively a large species. The female specimen (average size = 27 mm) filled almost entirely the buccal cavity of its host.

Bombay, Mauritius, Seychelles and Red sea. If *Cymothoa recta* is a synonym, its range is extended to Hawaii (Brusca, 1981; Bowman and Tareen, 1983).

Some nominal species of *Cymothoa*, characterized by large size, nearly quadrate head, moderately wide amphicephalic processes of pereonite 1, and relatively short and wide telson, cannot be easily distinguished from one another. These species include *Cymothoa eremita*, *C. stromatei*, *C. borbonica*, *C. eximia* and *C. truncata*. Moreover, with the exception of *Cymothoa eremita*, the validity of some of these species must be considered questionable, details of their morphology being until now poorly known or unknown (Bowman and Tareen, 1983; Trilles, 1994). *Cymothoa pulchrum* was similar to the above species but appears to be identified by its broader amphicephalic processes (Galzin and Trilles, 1979; Bowman and Tareen, 1983).

In India, *Cymothoa eremita* was first collected from the Black pomfret along the Southwest coast (Radhakrishnan and Nair 1983). In the present study, this species was reported from the same fish in the southeast coast. These data showed that, in India, the Black pomfret, a carangid species, was the type and preferred host of *C. eremita*.

Table - 1: Occurrence of *Cymothoa eremita* according to the month and the fish sex

Months	Male fish			Female fish		
	No. of examined fish	No. of infested fish	No. of parasites collected	No. of examined fish	No. of infested fish	No. of parasites collected
April-10	18	-	-	24	-	-
May-	16	-	-	22	-	-
June-	15	-	-	21	3	3
July-	26	-	-	18	-	-
Total	75			85	3	3

Its size was more or less directly proportional to the size of the host, large specimens being always present in large fish and vice versa. Invariably only one female infected the host (Radhakrishnan and Nair, 1983).

Nine host species belonging to 8 genera, *Arothron leopardus*, *Hime japonica*, *Pampus argenteus*, *Pampus cinereus*, *Parastromateus niger*, *Peprilus paru*, *Psettodes erumei*, *Siganus canaliculatus* and *Sphyræna obtusata*, were recorded by several authors as compiled by Trilles (1994). However, some of them need to be checked.

Cymothoa eremita is very widely distributed in the Indo-Pacific. Accepting Trilles' (1994) synonymy, the distribution of this species ranged from Japan through the Pescadores, the Philippines and Indonesia to the Cape York Peninsula, Australia, and East to the Society islands. It has been also reported from Singapore, Malaysia and Bangkok, Ceylon, Indian Peninsula from Madras to

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