



On the Records of *Philometra* sp Occurrence on Sciaenid Species

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Abstract

During a study on taxonomy of family Sciaenidae, two new host, *Panna heterolepis* and *Nibea soldado* for the nematode parasite *Philometra* sp, were recorded on specimens collected from east coast and west coast of India, respectively and also on *Otolithes ruber* collected from north-east coast of India. The preferred site of attachment for the parasite was found to be in the caudal fin and anal fin areas. In most cases, only one parasite was found attached on each fish, while in some few specimens, it was two parasites per fish.

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Introduction

The nematode parasite, *Philometra* (Philometridae) is known to infect a wide variety of fishes from brackish and marine water fishes (Moravec *et al.*, 2006; Moravec *et al.*, 2011). Sciaenids are one of the hosts for this parasite, where a number of researchers have reported to infect mainly ovaries and the caudal fin region (Mohan, 1971; Rajyaluxmi *et al.*, 1985; Moravac *et al.*, 2006, 2007, 2010, 2013; Moravec and Manoharan, 2013; Sethi *et al.*, 2013; Moravec and Ali, 2013). During a sampling survey for a taxonomic study on sciaenids along the Indian coastline, some species, notably *Nibea soldado*, *Panna heterolepis* and *Otolithes ruber* found along the Indian coast, were found to be infected with *Philometra* sp. in their fins. The knowledge of the occurrence of parasitic fauna in different host species in the wild is essential to gain insight into disease problems prevalent in a given host species and a given geographical area (Biju Kumar, 2006), in order to develop management practices.

Materials and Methods

The specimens of *N. soldado* (n=1, 20.2 cm total length) from New Ferry Wharf, Mumbai, Maharashtra, West Coast of India, *P. heterolepis* (n=15, 16-23.2 cm range total length) and *O. ruber* (n=2, 21.5cm and 22.6 cm total length) from Howrah fish market, West Bengal, East Coast of India, were collected and brought to lab in ice box filled with ice. Photographs of the attachment site of the parasite were taken, and an examination of the parasite under a stereo zoom microscope was carried out.



Fig .1 Parasite attached on the caudal fin of (a) *Nibea soldado* (b) *Panna heterolepis* (c) *Otolithes ruber* (d) on the anal fin of *O. ruber*

Results and discussion

In all the observed species, the parasites were found attached to the subcutaneous region of the caudal fin except for one specimen of *O. ruber*, which was attached to the anal fin region between the 1st and 2nd anal fin ray. In all the cases, one parasite was recorded per fish specimen except for 3 specimens of *P. heterolepis* and 1 specimen of *O. ruber*, where 2 parasites per fish were observed in the caudal fin and anal fin region, respectively. The nematode parasite measuring 4.28 mm to 9.2 mm in length was reddish to dark brown in color. Though there were no major injuries or other anomalies in the fishes observed, in some specimens, the area of attachment of the parasite showed slight inflammation. Also, since *Philometrids* are mainly gonad infecting parasites, the gonads of the infected specimens were checked but no parasite infection were observed in the gonads of these specimens. There are various reports of *Philometrid*

parasite infection in sciaenid worldwide (Moravec *et al.*, 2006, 2007, 2010, 2013; Moravec and Buron, 2009; Moravec and Ali, 2013; Moravec and Barton, 2015) and in India (Mohan, 1971; Rajyaluxmi *et al.*, 1985; Moravec and Manoharan, 2013; Sethi *et al.*, 2013; Selvakumar *et al.*, 2014). However, the occurrence of *Philometrid* sp in *Nibea* and *Panna* species has not been recorded so far. From India, the earlier report mainly consists of the gonad infecting *Philometra* sp in *O. ruber* (Moravec and Manoharan, 2013; Selvakumar *et al.*, 2014), *J. belangerii* (Moravec and Manoharan, 2013; Moravec and Monohran, 2016), *Pennahia aneus* (Mohan, 1971), "*Johnius argenteus*" (Rajyaluxmi *et al.*, 1985) from the East coast of India and in the caudal fin of *O. ruber*, *Pennahia macrophthalmus* (Sethi *et al.*, 2013). The present study reports the prevalence and occurrence of new hosts of this parasite on the other sciaenids. The prevalence of the *Phiolemtrid* infection in gonads and fins may be because gonads are richly vascularized

organs, making them a suitable site for nutrient absorption and the fin regions have soft tissues and blood vessels that the parasite can exploit. And since the anal and caudal fin are visible external structures that can easily come in contact with the environment, it may have made them as vulnerable sites for parasite attachment. However, depending on the species and site of attachment of the parasites, the nature and severity of infection differs (Buron and Roumillat, 2010). Records on parasite infection are important to understand the distribution and prevalence of the parasite in different regions and they can act as a potential biological indicator of environmental change, pollution, climate change, and habitat degradation (Palm, 2011).

Conclusion

This study provides the first record of *Philometrid* parasite infection on *P. heterolepis* from East Coast and *N. soldado* from the West Coast of India, expanding the known host range for this parasite. While infection on *O. ruber* had been previously documented, this research contributes new data on parasite prevalence in sciaenids from different regions. Future research is required to determine the host range of *Philometrid* parasite and there is a need for histological studies to assess any potential damage at microscopic level.

Conflict of interest: There is no conflict of interest among the authors

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