Indian J. Fish., *59(3)* : *153-155, 2012*

Note

Occurrence of isopod parasites in clupeids off Chennai coast, India

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ABSTRACT

The study was carried out to investigate the incidence of isopod parasites in clupeids, with special emphasis on the Indian pellona fish, *Pellona ditchela* . Two species of isopods, *Joryma hilsae* and *Joryma sawayah* were found infecting this fish. The isopods of the genus *Joryma* are typical Indo-Pacific genus, found infecting the gills of marine fishes. However, this is the first report of these two species in Indian pellona, *P. ditchela* along the Bay of Bengal off Chennai coast, India. The prevalence (%) of *J. hilsae* and *J. sawayah* in *P. ditchela* recorded during the present investigation were 17.7 and 32.3 respectively. Cymothoids are common isopod parasites of marine fishes and their infection can cause serious damages to the fishes.

Keywords: Cymothoid, Indian pellona, *Joryma hilsae, Joryma sawayah, Pellona ditchela*

Cymothoids are obligatory parasites infesting many of the commercially important fishes. They are protandric hermaphrodites and bloodsuckers, living on the skin, gill filaments, or in the mouth of the fishes. These parasites retard growth and cause emaciation followed by death. Pathological conditions resulting from parasitic diseases in fishes reaches a high magnitude of epidemics under crowded and other unnatural conditions (Ravichandran *et al.,* 2007). Isopod parasite of the family *Cymothoidae* has been reported in about 350 species of fishes. Over 80% of these are from tropical and subtropical seas, many are from the Indo-Malaysian archipelago (Lester and Roubal, 1995). Their life cycle involves only one host (holoxenic cycle) (Trilles, 1994) and usually these are large sized parasites, which can cause deleterious effects on the host fishes (Trilles, 1996).

The information regarding cymothoid fauna of marine fishes from the Indian coasts is scanty (Pillai, 1954; Bal and Joshi, 1959; Veerapan and Ravichandran 2000). Most of the studies were from the east coast of India (Ravichandran *et al*., 1999, 2009; Ravichandran and Rameshkumar, 2004; Rajkumar *et al*., 2004, 2005; Ravichandran 2007; Rameshkumar and Ravichandran, 2010 a, b, Rameshkumar *et al*., 2011). The present study reports the infection of two isopod parasites (*J. hilsae* and *J. sawayah*) in the Indian pellona, *Pellona ditchela* (Clupeidae) from Chennai coast.

Samples of freshly landed clupeid fishes *viz*., *Pellona ditchela, Thryssa mystax, Thryssa setirostris* and *Tenualosa ilisha* captured in gillnets from the inshore waters of Bay of Bengal off Chennai (lat. 13° 03' 974" N; long 80º 17'362" E, south-east coast of India) from March, 2009 to May, 2012 were collected and transported to the laboratory for the study. The fishes were weighed, measured, and investigated for the presence of isopods with the help of a dissecting microscope. The isopods were isolated, cleaned, fixed in 4% formaldehyde solution in physiological saline and preserved in 70% ethanol for taxonomic identification. Photomicrographs were taken using an Olympus digital camera C7070 fitted to the Olympus CX41 microscope. The isopod parasites were identified according to Bruce (1986) and Trilles (1994). The taxonomic classification of the Indian pellona fish host was carried out following Fischer and Whitehead (1974) and Froese and Pauly (2012). The total length of the fish hosts and isopods parasites were measured.

During the present study, four species of clupeids including 130 numbers of Indian pellona, (184.4±27.26 mm in length and 56.94±8.28 g in weight) were examined for presence of isopods. Among the various species of clupeids examined, only the Indian pellona, *P. ditchela* were found infected with two species of isopod parasites. The parasites were identified as *Joryma hilsae* Bowman and Tareen, 1983 and *Joryma sawayah* Rameshkumar, Ravichandran and Trilles, 2011 (Crustacea; Isopoda; Cymothoidae).

J. hilsae (Fig. 1) was collected from 23 fishes and *J. sawayah* (Fig. 2) was found infected in 42 fishes. *J. sawayah* showed higher prevalence (32.3%) in *P. ditchela* followed by *J. hilsae* (17.7%) (Table 1). The number of parasites per fish ranged from one to four with average of 1.028 ± 0.70 and were found mostly from gill chambers.

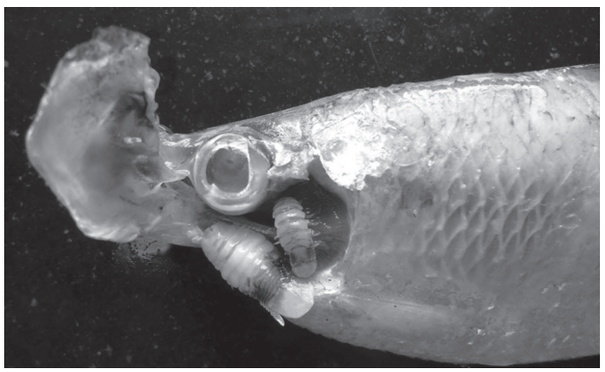

Fig. 1. *J. hilsae* attached to the gill region of *P. ditchela*

Fig. 2. *J. sawayah* attached to the gill region of *P. ditchela*

Body colour of *J. hilsae* (Fig. 3) was pale tan with large dark stripes on lateral parts of pereonites 6 and 7 and pleonites 1 – 5. The dorsal posterior side of *J. hilsae* showed clear blackish bands. The average length and weight of *J. hilsae* was 22.8 ± 4.13 mm and 0.405 ± 0.196 g respectively. In *J. sawayah* (Fig. 4) body colour was whitish with a slight greenish tinge on the dorsal side. The mean length and weight of *J. sawayah* was 24.05 ± 2.37 mm and 0.4194 ± 0.104 g respectively.

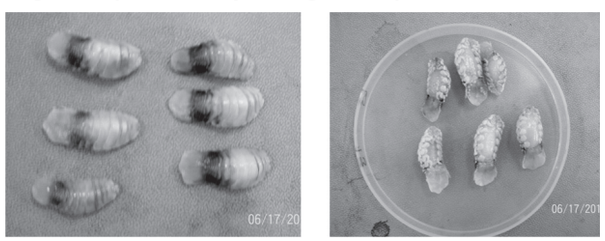

Fig. 3. Gravid females of *J. hilsae* collected from *P. ditchela* (dorsal & ventral view)

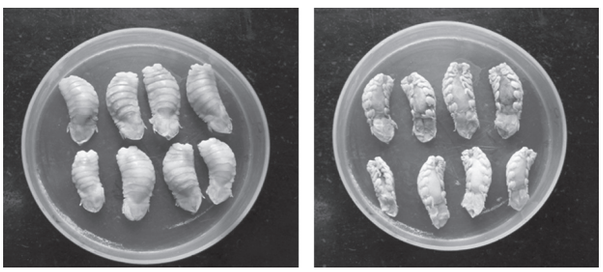

Fig. 4. Gravid females of *J. sawayah* collected from *P. ditchela* (dorsal and ventral view)

Rameshkumar and Ravichandran (2010) reported infection of two species of isopods *Cymothoa indica* and *Alitropus typus* in *Tilapia mossambica* from Vellar Estuary, Tamil Nadu, India. Ravichandran *et al.* (2009) reported infestation of *Rastrelliger kanagurta* with cymothoid isopod, *Joryma brachysoma* from Colachel, south-west coast of India. Ravichandran *et al.* (2007) studied the histolopathological changes associated with *Joryma tartoor* infestation in *Parastromateus niger*. Mance (juvenile parasitic stages of cymothoid) feed voraciously and kill fry and fingerlings of several species of fishes. 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).

In the present study, two isopods parasites (*J. hilsae* and *J. sawayah*) are reported in a single species of are *P. ditchela* along Chennai coast. According to Rameshkumar *et al.* (2011) all the species of *Joryma* are reported from the North-western Indian Ocean. *J. hilsae*, *J. engraulidis*, *J. tartoor* and *J. brachysoma*, from the South-western coasts of India and only one species *J. sawayah* from Kuwait. In the present study, *J. sawayah* which was earlier reported only from Kuwait waters is reported for the first time from the Indian pellona, *P. ditchela* along Chennai coast of India.

Table 1. Nature of isopod infection in clupeid fishes of Chennai coast

Fish species	Number of fishes examined	Number of fishes infected with *J. hilsae*	Number of fishes infected with *J. sawayah*
Pellona ditchela	130	23 (17.7)*	42 (32.3)*
Thryssa mystax	30	0	0
Thryssa setirostris	50	0	0
Tenualosa ilisha	40	9	0

*Prevalence (%)

Acknowledgements

Author is thankful to Dr. Kalaiselvam, Assistant Professor, CAS in Marine Biology, Annamalai University, Parangipettai, Tamil Nadu, Índia for identification of the parasites and thanks are also due to Shri. S. Rajapackiam, Technical Officer, MRC of CMFRI, Chennai for his constant support and encouragements.

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Date of Receipt : 08.05.2012
Date of Acceptance : 01.09.2012