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Short Communication

Identification of *Parapenaeopsis stylifera*, a new host for *Epipenaeon ingens*

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Abstract: *Epipenaeon ingens (Isopoda: Bopyridae) is reported for the first time from Parapenaeopsis stylifera (Decapoda: Penaeidae) in South India. According to the month the parasitic prevalence ranged from 0.0 to 2.9%. A characteristic bulge of the branchial chamber, growth retardation and degenerated sex organs were observed in the infested shrimp.*

Key words: *Bopyridae, Penaeidae, Host parasite relationship*
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Introduction

Bopyrid isopods belonging to Orbioninae parasitize the branchial chambers of penaeid shrimp and seventh genera are currently included in this subfamily (Trilles, 1999; Boyko, 2003). *Epipenaeon ingens* was described by Nobili (1906) from *Penaeus semisulcatus* collected in the Red sea. Later, this species was reported from several localities: Egypt, Suez Gulf, Mediterranean sea, Turkey, Israel, Hong Kong, Philippines, Gulf of Carpentaria, Port Darwin, Queensland coast, Australia (Owens and Rothlisberg, 1995; Li, 2003). *E. ingens* is mainly known from the Indian and western Pacific oceans. However a gradual expansion of this species in the Eastern Mediterranean happens since the Suez canal was opened in 1869 (Markham, 1986). It was also collected on *Penaeus* aff. *japonicus*, *P. merguiensis*, *P. indicus*, *P. stylirostris* and *P. esculentus*. In the Indian coastal waters, Thomas (1977) reported *Epipenaeon ingens* on *Penaeus semisulcatus* from the Palk bay and the Gulf of Mannar and Ravichandran *et al*. (2000) on *Penaeus monodon* from the Parangipettai coast.

In the present study, *Epipenaeon ingens* was collected from a new host, its occurrence was quantified and some of the parasitic effects were identified.

Materials and Methods

Specimens were collected along the Parangipettai coast (11°29'N, 79°96'E) in south India. Samplings were carried out at monthly intervals during the period from April 2007 to March 2008. The branchial cavities of shrimp were examined under a dissecting stereomicroscope for the presence of bopyrids. The parasites on each shrimp were numbered, sexed, weighed and measured to the nearest 0.1mm; the presence of eggs in the gravid female brood pouch was noted. The species was identified according to Kazmi and Tirmizi (1994) and Ravichandran *et al.* (2000). The prevalence was calculated according to Bush *et al.* (1997). Size, weight and maturity of the host were checked according to Kim *et al*. (2008).

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Results and Discussion

In this study, *Parapenaeopsis stylifera* (Milne Edwards) is identified as a new host for *Epipenaeon ingens* and extends the host range of this species within the Penaeidae. So *E. ingens* has a stenoxenic parasitic specificity. Penaeid shrimps are divided into three major groups on the basis of their different level of infestation. The heavily parasitized species is *Penaeus semisulcatus*, the weakly infested shrimps are *P. merguiensis* and *P. indicus* whereas *P. esculentus*, *P. monodon*, *P. latisulcatus* and *P. longistylus* are uninfested or rarely infested (Courtney, 1991). The present study suggests that *Parapenaeopsis stylifera* is an appropriate host for *Epipenaeon ingens* belonging to the second group.

3717 *Parapenaeopsis stylifera* were studied. 68 (45 females and 23 males) were parasitized by *Epipenaeon ingens*. The highest prevalences were observed in June 2007 (2.89%) and March 2008 (2.94%) (Table 1). It was more high in female than in male. Similar relationships have been reported by Owens and Glazebrook (1985) in Northern Australia. 38 bopyrids were attached in the right gill chamber and 30 in the left side of *P. stylifera*. 32 *Epipenaeon* gravid females were found with eggs in their brood pouch and males attached to the pleon. The mean size of female *E. ingens* ranged from 12.7 mm to 21.9 mm and the total length of male from 4.1 to 6.8 mm (Table 1). The total length of infested shrimps ranged from 8.2 to 9.5 cm.

The branchial chamber of parasitized *P. stylifera* developed a characteristic bulge. *E. ingens* bringing pressure on the host gills reduced the respiratory efficiency of the shrimp (Chaplin-Ebanks and Curran, 2005). It was collected a male shrimp measuring 8.9 cm with a female like rostrum.The infested shrimp showed degenerate primary and secondary sexual organs. Ovaries were undeveloped whatever the host size and the season. The petasma failed to develop normal length and shape according to the size of

Table - 1: Prevalence and parasitologic index of *Epipenaeon ingens* parasitizing *Parapenaeopsis stylifera*

Months	Number of shrimps examined	Number of shrimps infested	Prevalence (%)	Sex of the parasites		Mean size of the parasites (mm)		Number of gravid females	% of gravid females
				Males	Females	Males	Females		
2007									
April	220	2	0.9	0	2	4.1	12.7	1	50
May*	0	0	-	-	-	-	-	0	0
June	257	7	2.89	3	4	5.5	19.2	4	100
July	276	0	0	0	0	4.8	13.6	0	0
August	287	4	1.39	2	2	5.9	17.2	2	100
September	341	8	2.34	3	5	6.7	20.7	3	60
October	298	3	1	1	2	5.5	17.4	1	50
November	323	5	1.54	2	3	6.3	18.4	2	66.66
December	359	6	1.67	1	5	6.8	21.7	4	80
2008									
January	443	8	1.8	2	6	6.6	19.1	3	50
February	437	11	2.51	3	8	6.8	19.7	6	75
March	476	14	2.94	6	8	6.7	21.9	6	75
Total	**3717**	**68**	**18.98**	**23**	**45**			**32**	

*Ban period in the East coast of India

the infested male shrimp. Similar effects on the reproduction of penaeid shrimps infested by Orbionidae were also observed by Courtney (1991), Chu and Leong (1996), Ayub and Ahmed (2004). No marked change was observed in the weight of infested *Parapenaeopsis* as reported by Chu and Leong (1996) for *Metapenaeus* parasitized by *Orbione*.

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