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A NEW RECORD OF *EPIPENAEON INGENS NOBILI* (BOPYRIDAE, ISOPODA) PARASITIC ON *PENAEUS SEMISULCATUS* DE HAAN FROM PALK BAY AND GULF OF MANNAR

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ABSTRACT

The isopod *Epipenaeon ingens* Nobili parasitic on *Penaeus semisulcatus* de Haan is reported for the first time from Indian waters. A brief description of the parasite is given along with the percentage of incidence and their effect on the host.

While analysing the prawn samples obtained from Palk Bay and Gulf of Mannar for routine biological studies, some of *Penaeus semisulcatus* de Haan were found to be infected by the ectoparasite, *Epipenaeon ingens* Nobili. This parasite has been earlier described by Nobili (1906) from Red Sea, parasitising *Penaeus semisulcatus* (= *Penaeus ashiaka*, Kishinouye). Dawson (1958) recorded *Epipenaeon elegans* Chopra from the Persian Gulf and Chopra (1923) reported the same species from *Penaeus carinatus* (= *P. monodon*) and *P. semisulcatus*. A brief description of the present specimens is given below.

*Epipenaeon ingens* Nobili

*Female*: Body large, oval, larger than broad and slightly asymmetrical. Head distinct from thorax and prolonged into a lamina, anteriorly. Eyes rudimentary. Thoracic somites well marked with clearly defined demarcating lines, epimera of these somities being highly developed with rounded outer margins (Fig. 1, b).

Abdomen one-third total length, with less developed pleural lamellae and without tubercles on dorsal surface. Only five abdominal somites visible dorsally, with paired biramous pleopods. Rami of abdominal appendages covered with warts and tubercles.

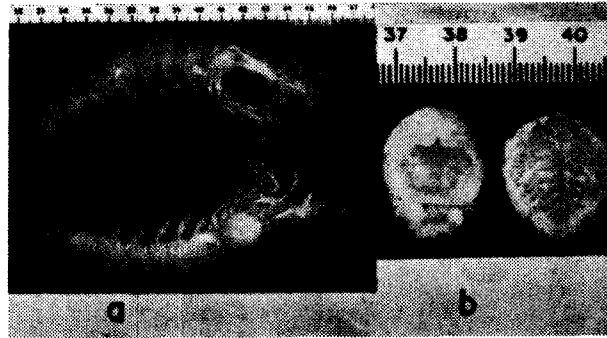


FIG. 1. a: *Penaeus semisulcatus* de Haan parasitised by *Epipenaeon ingens*, Nobili, showing enlarged branchial chamber; b: *Epipenaeon ingens*, Nobili, dorsal and ventral views of female showing the brood pouch and the small male attached to the ventral side of the abdomen of female.

**Male:** Body elongated, twice as long as broad. Head small, distinct from thorax. Eyes extremely reduced. Antennules three-segmented. Thoracic somites distinct, with deeply notched lateral margins, first two pairs of lateral margins being directed anteriorly, while the outer one extends laterally. Abdominal somites completely fused to form a sub-triangular structure. No trace of pleopods or uropods.

This species could be distinguished from *E. elegans* Chopra and *E. japonicus* Theilemann, by the different body proportions. In *E. japonicus* it is longer than broad. Although *E. ingens* and *E. japonicus* are closely related, they differ in the nature of the frontal lamina the pleural lamella of abdomen, the dorsal surface of abdomen and the depth of the lateral notches of the thoracic segments of males. In *E. ingens* the frontal lamina is very small unlike that of *E. japonicus*. Similarly, the dorsal surface of the abdomen is without tubercles in *E. ingens* as against the tuberculate dorsal surface of abdomen in *E. japonicus*. Besides, the pleural lamellae poorly developed in *E. ingens* are well developed in *E. japonicus*. The thoracic segments of males have deep notches on the outer side in *E. ingens* whereas, they are not deeply notched in *E. japonicus*.

The female parasites had a size range (total length) of 12.85-24.15 mm. The males measured 4.25-7.75 mm. The hosts were found in the length range

of 25 to 48 mm in carapace length. There was no correlation between the size of the host and the percentage incidence of the parasites. The occurrence of *E. ingens* during most of the months of the year indicated they could breed and thrive well in all the season of the year.

*Incidence on the host:*

The investigations have shown that *P. semisulcatus* alone was infested by this parasite among many other species of penaeid prawns occurring along with this species. The same condition was observed by Dawson (1958) in the case of *E. elegans* from the Persian Gulf. *E. ingens* was found to occur in the branchial chamber of the hosts, usually in pairs, the male clinging to the ventral surface of the abdomen of the large female. The branchial chamber of these prawns develop a characteristic bulging to accommodate the parasite which completely filled this chamber (Fig. 1, a).

The percentage infection of these parasites was more in females than in males. During the first year of observation (1967-68), the percentage incidence of parasites was higher in females in April, June September, October and December, the maximum being in the last month. Only in March, 1968 a higher incidence was recorded for male hosts (Table 1). Similarly, in the year 1968-69 the incidences registered during all the months in which the parasites were observed was higher except in December 1968 and January 1969. The percentage ranged from 0.19 to 2.75 in males and 0.23 to 4.55 in females.

Table 1. *Percentage incidence of Epipenaeon ingens Nobili on Penaeus semisulcatus de Haan*

(Numbers of prawns examined given in parenthesis)  
April, 1967 - March, 1968

Months	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Male	—	—	0.36	—	0.34	0.30	—	—	2.72	—	—	0.95
	(329)	(243)	(276)	(259)	(293)	(334)	(307)	(306)	(331)	(248)	200	317
Females	1.30	—	0.66	—	—	0.32	0.35	—	4.55	—	—	0.55
	(230)	(272)	(301)	(323)	(248)	(311)	(286)	(204)	(308)	(206)	324	184
April, 1968 - March, 1969												
Male	—	—	0.19	0.32	—	—	—	—	1.17	0.82	—	—
	(256)	(331)	(526)	(317)	(302)	(266)	(278)	(243)	(341)	(368)	306	300
Females	—	—	0.27	—	—	0.30	—	—	0.23	—	0.75	1.68
	(325)	(432)	(377)	(307)	(309)	(328)	(338)	(269)	(346)	(385)	398	240

*Effect on host:*

All the host specimens examined exhibited degeneration of the primary and secondary sexual organs. In females the ovaries were found always in undeveloped condition irrespective of the size of the host and the season. The petasma of the male also failed to develop to normal size and shape, in proportion to the size of the infected prawn. Besides, the parasites filling the entire branchial chamber of the host are likely to produce pressure on the gill surface and reduce the efficiency of respiration. Although, the infection does not cause immediate death, it would, probably affect the natural growth of the hosts, to a certain extent.

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## EFFECT OF HYPERACTIVITY ON BLOOD pH OF A FEW FRESHWATER TELEOSTS

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### ABSTRACT

The blood pH values of the freshwater teleosts depend upon the condition of the environment and activity of the fishes. The normal blood pH ranges between 7.77-9.88. Hyperactivity causes a significant fall in blood pH due to build up of blood lactic acid which is a reliable indicator of the condition of the fish.

The study was undertaken to investigate the normal pH value of the blood in field and laboratory conditions and variation of the blood pH during hyperactivity of a few freshwater teleosts, viz. *Channa punctatus*, *Clarius batrachus*, *Heteropneustes fossilis*, *Mystus vittatus*, *Colisa fasciatus* and *Barbus ticto*. Only a few workers have dealt with the pH of the blood viz. Black (1958), Black et al (1962), Caillouet (1967, 68), Haws and Goodnight (1962). But Gerard C. Le Tendre (1968) studied the blood pH of Channel catfish *Ictalurus punctatus* in different conditions.

The fishes were collected from 'Kalinadi' of Meerut. Few fishes were held for few hours in holding net in slight current for field test. Other fishes