New Record of Pea Crabs (*Pinnotheres sinensis* Shen, 1932) along the Manakudy Estuary, Southwest Coast of India

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**Abstracts:** The present study reported the first occurrence of a female crab *Pinnotheres sinensis* caught on 25th of March 2011 at the sea mouth of Manakudy estuary, which is a Southwest Coast of India. *P. sinensis* was first reported in 1932 by Shen in the Sagami Bay Coast of Japan. This is the first record in Indian Coast which expands in its known range. A new host of gastropod *Turritella attenuata*, was identified from the inside of the dead shell.

**Key words:** *Pinnotheres sinensis* · Sagami Bay · *Turritella attenuata* · Manakudy Estuary · Southwest Coast of India

**INTRODUCTION**

A perusal of the literature in this connection, as well as for identifying the crab, indicated the great need for a review of the available work on the systematic, biology, ecology and behaviour of pea-crabs, especially of the genus *Pinnotheres*, Latreille, 1802. Thus, in addition to our observations on the aforesaid instance of parasitic association, we have tried to cover here the general problem of commensalism and parasitism as pertaining to pea-crabs; a list of the known species of pea crabs of the genus *Pinnotheres* with data on distributional range and host records wherever available; and an annotated bibliography of the works hitherto carried out on the species of *Pinnotheres*. There is a high level of agreement between the species diversity and nature of the environment and hence the measure of the species diversity is an ecologically powerful tool [1].

There are many species of pea crabs, all grouped together by taxonomists to the family Pinnotheridae. Typically about the size of a pea, the tiny pea crab is usually found inside the shells of the common mussel. Protected from predators in the mantle cavity of its host, it feeds on any plankton that becomes trapped on the mussel’s gills as water passes over them. Whether the presence of this guest is harmful to the mussel is unclear. Female pea crabs are substantially larger than males and have an almost translucent carapace through which their pink reproductive organs are visible. Males have harder, yellowish brown carapaces that protect them during the breeding season, which runs from April to October. During this time, males leave the safety of their host’s shell and swim around looking for females with which to mate. In regions where shellfish are harvested commercially, the pea crab is considered a pest.

The pea crab has a carapace width ranging from 10 to 12 mm. The genus is recognized by the third pair of walking legs, which is longer than the other pairs and the dactyli of 3rd and 4th walking legs being larger than 1st and 2nd walking legs [2]. *Pinnotheres margarita* parasitic habits of Crustacea [3]. Life-history and biology of the oyster crab, *Pinnotheres ostreum* [4]. New molluscan hosts for two crabs on the coast of Baja California, with some remarks on distribution [5]. New records of pinnotherid crabs from the Gulf of California [6], Atkins, [7-9] studied moulting stages, colour change and biology of the pea-crab. Biology of *Pinnotheres pisum* [10], in Indian water Pea crab studied by [11, 12].

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The occurrence of the pea crab *Pinnotheres* in oysters, clams, ascidians, holothurians and brachiopods has been reported from different parts of the world [13-15]. [16], studied their occurrence and effects of their infestation on the backwater clam, *Metrix casta* from the southwest coast of India. But were record a new host of gastropod *Turritella attenuata*, from Manakudy estuary in India.

**MATERIALS AND METHODS**

Manakudy estuary, located in the southwest coast of Kanyakumari district has a total area of about 150 ha., extending over 2 km and is located between 8°4′ N latitude and 77°26′ E longitude (Fig. 1). It is a tropical bar-built estuary. The estuary is connected to the sea during the rainy season and remains land locked for the rest of the year by a sand bar, the local inhabitants cut open the sand bar. The formation and closure of the sand bar at the mouth leads to pronounced changes in the hydobiological conditions of the backwater. The nearly 0.5km upstream from the mouth at the tidal zone and in the northern bank of the estuary, a mangrove plantation covering an area of 40ha.

**THE Important Generic Characters of THE Pinnotheres sinensis:** The abdomen of the female Pea-Crab *Pinnotheres sinensis* shows an extremely high growth-rate relative to that of the carapace, especially in early stages measured (Fig. 2). That of the male shows very slight positive allometry. There is a very shallow growth-gradient in the male abdomen with its centre in segments V, VI. In the female the gradient is at first very steep with its centre further back, between segment VI and the telson. The relative growth of each segment of the female abdomen shows three successive periods of simple allometry with a progressively lower relative growth-rate. In the second period the fall in growth-rate is less marked in the telson than in the segments immediately in front. Finally, in the third period a definite centre of low growth-rate appears in segment VI, where originally it was highest and the growth-rate increasing both forwards and backwards. This encourages speculations concerning the control of growth by a centre of inhibition. Direct plotting of the data gives a somewhat simpler picture of growth, though careful scrutiny of the relative goodness of fit indicates that the logarithmic plotting gives a better representation of growth. This may mean that growth is determined intrinsically in the tissues themselves rather than by a general supply of “growth-factor” from the body. An analogy is offered to the distal movement of the growth-centre and steepness of the gradient when relative growth of the whole organ becomes very high. Growth during this period is largely by increase in cell-number rather than by increase in cell-size.

**Key to Species of the Pinnotheres Sinensis.**

- Rostrum consisting of three rounded lobes, fused at base; posterior lateral angles of carapace with a small acute tooth (approximately above base of 1st walking leg)

![Fig. 1: Map showing study sites in Manakudy estuary.](image)
Fig. 2: Pinnotheres sinensis A, Female - dorsal view; B, non-ovigerous female - ventral view; LC- Length of carapace (9 mm); BC- Breadth of carapace (12.1 mm).

**Classification of Pinnotheres Sinensis:**
- **Kingdom**: Animalia
- **Phylum**: Arthropoda
- **Subphylum**: Crustacea
- **Class**: Malacostraca
- **Subclass**: Eumalacostraca
- **Order**: Decapoda
- **Suborder**: Pleocyemata
- **Family**: Pinnotheridae
- **Subfamily**: Pinnotherinae
- **Genus**: Pinnotheres
- **Species**: sinensis

- Dactyli of third and fourth ambulatory legs goods deal longer than those of first and second pairs (Table.1)
- Dactylus of fourth ambulatory legs hairy around its distal half
- Dactylus of external maxilipeds does not reach tip of propodus
- Carapace broadened posteriorly
- Dactylus of last ambulatory legs with two rows of setae near distal end of posterior border

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**REFERENCES**


