



# Systematics and Extended Distribution of *Metapenaeus elegans* De Man, 1907 in Coastal Water of India



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## Abstract

Present study reveals that the prawn *Metapenaeus elegans* is an established species. The species has been described from Menado, Celebes during "Siboga Expedition" by De Man. Silas and Muthu has reported the species first time from Andaman Sea of Indian water. Still date the species has been reported from Andaman water by several authors. During the present study the species has been recorded from Andhra Pradesh coastal water of India. As such present study extends the distribution range of the species up to coastal water of Indian main land.

**Keywords:** *Metapenaeus elegans*, Distribution, Andaman, Andhra Pradesh

## Introduction

Prawn is the most valuable marine resource of many nation and contribute a lion share to the economy of the country. Exploitation of prawn resource from the seas around each country is playing increasingly significant role in furthering their national economy [1-4]. Recently, though there is some ecological hazard in prawn culture but due to high demand of prawn products among people, every nation is trying to grow their prawn production by culturing more and more prawn species found in their local population which is unknown but usable stocks and expansion of prawn fisheries and industries near coast line is rightly being given the maximum encouragement in the development programme of a nation. In India, with the introduction of mechanization and due to the development of efficient export industries, prawn fishery has substantially improved during last three decades.

The foreign exchange earnings by exporting of prawns and prawn products from the country have grown up considerably at present. In short, as in every prawn fisheries together with all the segments of the industry concerned with prawn products export are playing increasingly prominent role in the economy of the country. Due to this economic importance and the fact that penaeid prawns occur in a wide variety of ecosystem like marine, estuarine and back water habitats, knowledge on the ecology, feeding, reproduction, lifecycle, fecundity, prey predator relationship, behavior, population dynamics and fisheries potentials have vastly increased over the last three decades [5-9]. The knowledge on

the prawn taxonomy is an essential prerequisite for their proper management and exploitation. Fabricius [10] is the pioneer worker on prawn taxonomy in Indian water. Some important contributions on the prawns of this region during nineteenth century were by Milne Edwards [11], Miers [12], Bate [13], Wood-Mason [14], Wood-Mason & Alcock [15], Alcock & Anderson [16,17]. Alcock [7,18,19] & George [20] was the taxonomist of 20th century who tried to make a comprehensive study on the penaeid taxonomy in Indian region. In late 20th and early 21st, there are so many taxonomic contributors on the group like Fischer & Bianchi [21], Paulinose [22], Achuthankutty & Parulekar [23], Reddy [24], Pathan & Jalihal [25], Chanda & Bhattacharya [26-30], Chanda & Roy [31,32], Chanda [33-35], Kunju [36], Kurian & Sebastean [37], Radhakrishnan et al. [38], etc are available valuable contribution for Indian water.

In spite of these work, there are some lacuna on the penaeid systematics and distribution of Indian region. So, present work is an attempt to fill up one of such lacuna found by the author on distribution of *Metapenaeus elegans* De Man, 1907. The species was previously recorded only from Andaman Sea by the above mentioned scientific works in Indian regions. Present work is the distributional range extension of the species from Andaman to Andhra Pradesh coast and its systematic study will certainly enrich our knowledge on the diversity of penaeid prawn in Indian coastal water.

## Materials and Methods

Present study is mainly based on the specimens preserved in the National Collection of the Zoological Survey of India, Kolkata, West Bengal, India, collected by different scientists and researcher of the organization. The materials preserved in rectified spirit (90%) and body parts of taxonomic importance have been dissected and studied under a stereoscopic binocular microscope, if necessary. The detailed taxonomic history of the species have been furnished and also their diagnostic characters, distribution, taxonomic remarks have been furnished. In addition an attempt has been made to consult and cite an up to date literatures are included in the Reference Section. For all citations of taxon, author's name and year of publication has been given for easy searching of the respective literature.

## Systematics account

- A. Subphylum: Crustacea Brunnich, 1772
- B. Class: Malacostraca Latreille, 1802
- C. Subclass: Eumalacostraca Grobben, 1892
- D. Superorder: Eucarida Calman, 1904
- E. Order: Decapoda Latreille, 1802
- F. Suborder: Dendrobranchiata Bate, 1888.
- G. Super family: Penaeioidea Rafinesque-Schmaltz, 1815.
- H. Family: Penaeidae Rafinesque – Schmaltz, 1815.
- I. Genus: *Metapenaeus* Wood-Mason, 1891.

## *Metapenaeus elegans* De Man, 1907

*M. elegans* was described by De Man [39] from Menado, Celebes during "Siboga Expedition". The species was first recorded from India by Silas & Muthu [40]. A brief history of the species with special reference to Indian contributions has been given below. 1907 *Metapenaeus elegans* De Man, Notes Leyden Mus., 29(2): 130;

Silas & Muthu, 1974, J Mar Biol Ass India, 18(1): 78-90. Jones 1976 [41], Proc Symp Crustacea 4: 1328-1340.

Type species: *Metapenaeus elegans* De Man, 1907, Notes Leyden Mus 29(2): 130.

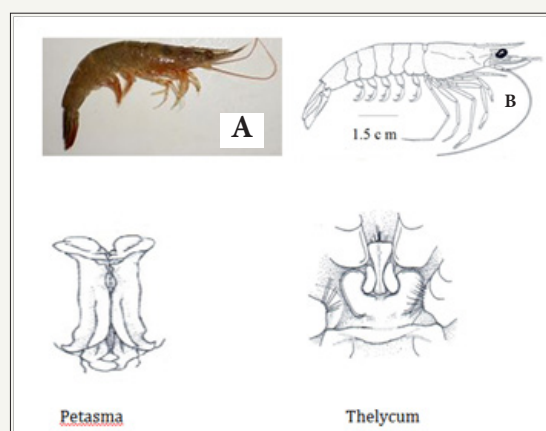
Type Locality: Menado, Celebes.

## Material Examined

15 males (30-58mm) and 16 females (30-60mm), ZSI Reg. No. C4892/2, Mypadu, Nellore, Andhra Pradesh, 31.8.1995, A Chanda.

## Diagnosis of the species (Figure 1)

Dorsal portion of carapace and first abdominal segment is pubescence, sometimes body smooth; rostrum long extend beyond peduncle antennules, tip of rostrum slightly up tilted, armed with 9-12+1 dorsal teeth only; no toothless portion on rostrum; post rostral carina not reaching posterior margin of carapace; adrostral carina ending in between penultimate and second rostral tooth on carapace and sulcus behind epigastric tooth; epigastric tooth conspicuously separated from penultimate tooth of rostrum; antennal and hepatic spine prominent; postocular sulcus oblique to the horizontal axis of carapace, cervical sulcus marked prominently; hepatic sulcus descend vertically and then turn towards pterygostomial angle on carapace; pterygostomial angle blunt and rounded; branchio-cardiac carina prominent and jointed with hepatic spine of carapace; ischium of first pereopod with a sharp spine; in adult males merus of fifth pereopod followed by a keel shaped tubercle; telson having no movable spine, has minute lateral row of spinules; antennular flagella equal; distomedian projection of median lobe of petasma is petaloid with a longitudinal groove at median portion, directed antero-laterally over distolateral projection of lateral lobe of petasma; anterior plate of thelycum tongue shaped, narrow posteriorly and wide anteriorly, a longitudinal groove present on midposterior part of anterior plate, guarded by two kidney shaped median lobes; lateral margin of posterior plate on sternite XIV raised upward and curved inward like ear flap.



**Figure 1:** *Metapenaeus elegans* De Man (1907);

A: Color,

B: Line drawing.

## Distribution

India: Andaman Sea and Andhra Pradesh, east coast of India.

Elsewhere: Philippines; New Guinea; Fiji; Wallis; Futuna Island Sri Lanka; Malaysia; Borneo and Thailand.

## Conclusion

All materials examined confer well with the description and illustrations of Hall [42,43] except presence of a sharp ischial spine on first pereopod as observed also by Silas and Muthu [40] in their collections from Andaman Sea. Previous records reveal that the species has been reported only from Andaman Sea, India by several authors like Silas EG & Muthu MS [40], George [20], Kurian & Sebastean [37], Radhakrishnan EV et al. [38], Jones S [41] etc. During the present study the species is being first time recorded from Andhra Pradesh coastal water i.e., from coastal water of main land of India. Therefore, present work is the record of extended distribution for the species in Indian region and the work will certainly enrich our knowledge about the macro-faunal diversity in the coastal water of India. Simultaneously, systematic account for the species is the additional attribute in the present work for proper identification of the species.

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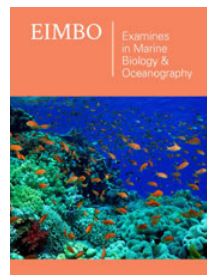
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