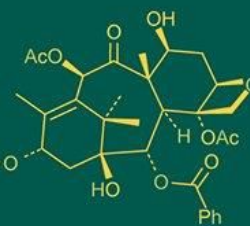
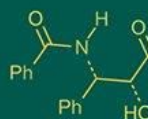


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First confirmed record of rice velvet shrimp, *Metapenaeopsis andamanensis* (Wood-Mason in Wood-Mason & Alcock, 1891) (Decapoda; Penaeidae) from north-west coast of India, Arabian Sea with morphological notes

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Abstract

The family Penaeidae Rafinesque, 1815 comprises a diverse and economically important group of marine decapod crustaceans widely distributed in tropical and subtropical seas. *Metapenaeopsis andamanensis* (Wood-Mason in Wood-Mason & Alcock, 1891) has hitherto been reported from the south-west and south-east coasts of India, as well as from the Andaman and Nicobar Islands. In the present study, *M. andamanensis* is recorded for the first time from the north-west coast of India, based on specimen collected from deep-sea trawler bycatch at Veraval Fishing Harbour, Gujarat, from depths of 200-300m. Detailed morphological examination of the collected material confirms its identity and agrees well with previous descriptions of the species. This new distributional record significantly extends the known geographic range of *M. andamanensis* westward into the Arabian Sea and highlights the underexplored penaeid shrimp diversity along the north-west coast of India. The present finding contributes important baseline information to the biogeography and distribution of penaeid shrimps in Indian waters.

Keywords: Arabian sea, deep-sea, Gujarat, range extension, trawler

Introduction

The family Penaeidae Rafinesque, 1815 represents one of the most diverse and economically significant groups of marine decapod crustaceans, comprising of 53 genera distributed primarily in tropical and subtropical seas (Deca Net, 2026) [4]. Penaeid shrimps occupy a wide range of habitats, from shallow coastal waters and estuaries to deep continental shelf and slope environments, and play a crucial role in benthic and demersal ecosystems as both predators and prey (Holthuis, 1980) [5]. Owing to their ecological importance and high commercial value, members of Penaeidae have been the subject of extensive fisheries exploitation and aquaculture development worldwide (Dall *et al.*, 1990) [3]. Among the above mentioned genera, the genus *Metapenaeopsis* Bouvier, 1905 is identified through presence of a pterygostomian spine with the anteroventral corner produced into a tooth-like projection, a distinctly setose integument, and a carapace lacking transverse sutures; the telson bears a pair of fixed subapical spines together with two or more pairs of movable spines, the first article of the antennular peduncle is armed with a ventromesial spine and carries flagella shorter than the carapace, the ischium of the second pereopod bears a spine, and the petasma is asymmetrical (Poore and Ah Yong, 2023) [7]. In Indian coast, under the genus *Metapenaeopsis* 14 species was recorded (Samuel *et al.*, 2016) [9]. The *M. andamanensis* is reported from Southwest, southeast, Andaman & Nicobar Islands and Kerala.

In the present study, *M. andamanensis* is recorded for the first time from Gujarat along the north-west coast of India, based on specimen collected from deep-sea trawler bycatch at Veraval Fishing Harbour. This new distributional record significantly extends the known geographic range of the species and contributes to a better understanding of the diversity and biogeography of penaeid shrimps along the Indian coastline.

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Materials and Methods

Study area and specimen collection

The study was conducted at Veraval Fishing Harbour, Gujarat, located along the north-west coast of India. Specimen was obtained from the bycatch of commercial deep-sea trawlers operating off the Veraval coast at depth range of 200-300 m. Immediately after landing, shrimp was sorted from the bycatch and collected.

Morphological examination

The collected specimen was rinsed with distilled water for detailed morphological examination. Specimen was examined under a stereomicroscope to document diagnostic morphological characters. Observations focused on rostral morphology and dentition, carapace grooves and carinae, abdominal somites, telson, and appendages. Male petasma was carefully dissected and examined.

Measurements and terminology

Morphometric measurements were taken using digital vernier caliper to the nearest 0.1 mm. Carapace length (CL) was measured from the posterior margin of the orbital region to the posterior dorsal margin of the carapace.

Systematic position

Order: Decapoda Latreille, 1802

Family: Penaeidae Bate, 1888

Genus: *Metapenaeopsis* Bouvier, 1905

Species: *Metapenaeopsis andamanensis* (Wood-Mason in Wood-Mason & Alcock, 1891)

Materials examined

Male (n = 1), (carapace length = 25.5 mm; coll. Shivani Tandel; 10 December 2025; Veraval fishing harbour (20° 50' N and 70° 28' E), Gujarat, India; depth 200-300 m.

Diagnosis (modified from Crosnier, 1987) ^[1]

Rostrum almost straight, aligned with dorsal margin of carapace; dorsal teeth 7; in females slightly exceeding antennular peduncle, not surpassing half-length of third peduncular article; in males not extending beyond peduncular tip. Antennular flagella long, frequently broken in examined material; ratio of length of longest flagellum to antennular peduncle 1.00-1.05 times in female, consistently around 1.05 times in male. Left distodorsal element of petasma with distal portion distinctly rounded. Median plate of thelycum smooth and glabrous; in smaller specimens convex both transversely and longitudinally, in larger specimens longitudinally grooved; posterior part strongly recurved, producing apparently angular junctions of lateral and posterior margins in ventral view due to optical effect, as true bilobed posterior margin not visible ventrally;

anterolateral ridges bordering transverse plate thin and distinctly flared.

Discussion

The genus *Metapenaeopsis* represents the largest and one of the most extensively studied genera within Penaeidae, encompassing a wide range of morphologically and ecologically diverse species (Poore & Ahyong, 2023) ^[7]. Several species of the genus are commonly referred to as “velvet shrimps” owing to the distinctly setose and velvety texture of their exoskeleton. Taxonomic understanding of the genus has been largely by classical identification keys, particularly those developed by Racek and Dall (1965) ^[8], and Crosnier (1994) ^[2], which separate species based on habitat depth and the presence or absence of a stridulating organ. The keys primarily addressed by Racek and Dall (1965) ^[8] for shallow-water Indo-West Pacific species characterized by a well-developed stridulating organ along the posterior margin of the carapace. On other hand, Crosnier (1994) ^[2] later provided comprehensive treatments of deep-water *Metapenaeopsis* species in which this organ is absent.

The present study reports the first confirmed occurrence of *Metapenaeopsis andamanensis* from the north-west coast of India, Arabian Sea, thereby extending its known distribution considerably westward from its earlier records in the south-west, south-east and Andaman and Nicobar Islands. The *M. andamanensis* commonly distributed in the depth range of similar to this in the present study the specimen was collected from the depth range of 150-350 m. As per IUCN Red List of Threatened Species (IUCN, 2026) the *M. andamanensis* was categorized as Not Evaluated (NE) and presently the species is not widely consumed but it is utilized for preparation of animal feed due to its deep-sea habitat.

This finding highlights the underexplored nature of penaeid shrimp diversity along the north-west coast of India. The examined specimens agree well with the original description and subsequent accounts of *M. andamanensis* in key diagnostic characters of Crosnier (1987) ^[1]. Minor morphological variations observed in the present material fall within the range of intraspecific variability previously reported for the species and may be attributed to environmental or geographical influences. The occurrence of *M. andamanensis* in the Arabian Sea suggests a broader Indo-West Pacific distribution than previously recognized, possibly facilitated by larval dispersal through prevailing oceanic currents. Overall, this study contributes valuable baseline data to the biogeography of penaeid shrimps in Indian waters and supports the necessity for systematic sampling to better understand species distribution patterns.

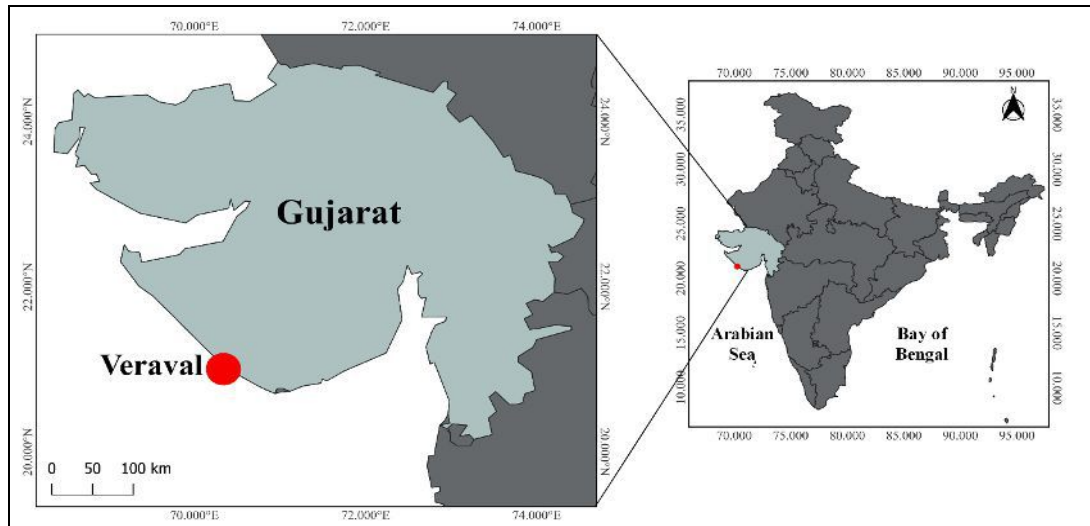


Fig 1: Map of the study area Veraval fishing harbour, Gujarat, Northwest coast of India



Fig 2: *Metapenaeopsis andamanensis* (Wood-Mason in Wood-Mason & Alcock, 1891) collected from Veraval fishing harbour, Gujarat, Northwest coast of India

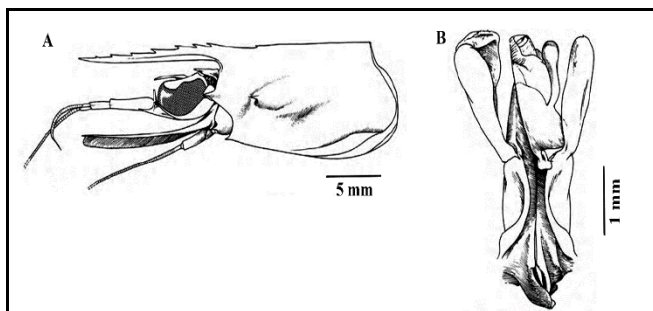


Fig 3: *Metapenaeopsis andamanensis* (Wood-Mason in Wood-Mason & Alcock, 1891). A: Carapace and B: Petasma (Dorsal view).

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