

List of Publication

1. **Purohit B** and Vachhrajani KD (2020). First records of sponge-dwelling shrimp *Synalpheus coutierei* Banner, 1953 (Crustacea: Decapoda) from the west coast of India. *Journal of Fisheries*, 8(2): 854-857. (ISSN: 1562-2916)
2. **Purohit B** and Vachhrajani KD (2019). New record of the monotypic genus *Procletes* (Decapoda: Pandalidae) from the West coast of India. *UNED Research Journal*, 11(3): 292-295. (ISSN: 1659-441X)
3. **Purohit B** and Vachhrajani KD. 2019. Eight New Records of Caridean (Crustacea: Decapoda) Shrimps from Shallow Water along the Coastal Area of Gujarat. *Journal of Marine Biology & Oceanography*, 8(1): 1-5. (ISSN: 2324-8661)
4. **Purohit B** and Vachhrajani KD. 2018. First record of stenopodidean shrimp *Microprosthema validum* Stimpson, 1860 (Crustacea: Decapoda: Spongicolidae) from West coast on India. *Flora and Fauna*, 24 (1): 145-147. (ISSN: 2456-9364)
5. **Purohit B.** and Vachhrajani KD. 2017. New Records of Penaeid Prawns (Crustacea: Decapoda) from Gujarat coast, India. *International Journal of Fisheries and Aquatic Studies*, 5(2): 405-411. (ISSN: 2347-5129).
6. **Purohit B.** and Vachhrajani KD. 2016. Telson abnormality in *Metapenaeus kutchensis* (Dendrobranchiata, Penaeidae) from Gulf of Kachchh, India. *International Journal of Fisheries and Aquatic Studies*, 4(5): 585-586. (ISSN: 2347-5129).

The first page of each publication is enclosed:



First records of sponge-dwelling shrimp *Synalpheus coutierei* Banner, 1953 (Crustacea: Decapoda) from the west coast of India

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Abstract

The occurrence of the two pairs of mature sponge dwelling shrimp *Synalpheus coutierei* Banner, 1953 is reported first time from the west coast in Gujarat, India. This species is previously reported from the east coast of India. The detailed morphological characteristic and distribution of the species are given in the paper.

Keywords: Alpheidae; new record; *Synalpheus coutierei*; sponge-dwelling shrimp; west coast of India

1 | INTRODUCTION

Synalpheus Spence Bate, 1888, is the second largest diverse genus of family Alpheidae inhabitant in shallow tropical marine ecosystem worldwide (Duffy 1992; De Grave and Fransen 2011). Species of the genus *Synalpheus* mostly observed in crevices inside coral rubble, internal space of sponges, hard and soft corals, crinoids and ascidians (Pearse 1950; Banner and Banner 1975; Bruce 1976; Duffy 1992; Santos *et al.* 2012). *Synalpheus coutierei* Banner, 1953 is well known throughout the tropical shallow waters of Indo-West Pacific as an obligate symbiotic species living inside the internal space of sponges (Banner and Banner 1975; Wicksten and McClure 2007; MacDonald III *et al.* 2009). In India, this species is previously reported from the east coast of India (Banner and Banner 1979). In this paper we report the occurrence of *S. coutierei* for the first time from the west coast of India.

2 | METHODOLOGY

Two pairs of live shrimp specimens were collected from the internal canals of the intertidal region of rocky and coral reef habitat in Shivrampur, Saurashtra Coast of Gujarat state, India (Figure 1). They were retrieved from an unidentified sponge by handpicking method during the low tide. Collected shrimp specimens were preserved in 4% formalin solution and transferred to 70% ethanol solution in the laboratory. Total length (TL, from the tip of the rostrum to the posterior end of the telson) and carapace length (CL, the posterior orbital margin to the posterior margin of the carapace) was measured using a digital vernier caliper (0.01 mm accuracy). Specimens were identified following Banner and Banner (1975) and Wang and Sha (2015). Specimens were deposited at the Zoology Museum, Department of Zoology, The Maharaja Sayajirao University of Baroda, Vadodara (code ZL-AR-PR-48).

NOTE



New record of the monotypic shrimp genus *Procletes* (Decapoda:Pandalidae) from the West coast of India

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ABSTRACT: Introduction: Significant work has been done on the diversity and distribution of pandalid shrimps in Indian waters but reports did not include the presence of this species. **Objective:** To list the marine shrimps of Gujarat. **Methods:** Samples were collected from trawl catch. **Results:** *Procletes levicarina* is reported for first time from the coastal area of Gujarat, including a detailed morphological description and photographs. This species is previously reported from the east coast of India. **Conclusion:** *Procletes levicarina* occurs in the west coast of India.

Key words: pandalid shrimp, *Procletes* Spence Bate, new record, Gujarat.

RESUMEN: "NOTA. Nuevo registro del género monotípico del camarón *Procletes* (Decapoda: Pandalidae) de la costa oeste de la India." **Introducción:** Se ha realizado un importante trabajo sobre la diversidad y distribución de camarones pandálidos acuáticos de la India, pero los registros no incluyen la presencia de esta especie. **Objetivo:** Generar una lista de los camarones marinos de Gujarat. **Métodos:** Se recolectaron muestras de capturas de arrastre. **Resultados:** *Procletes levicarina* se reporta por primera vez en el área costera de Gujarat, incluyendo descripciones morfológicas detalladas y fotografías. Esta especie ha sido reportada previamente de la costa este de la India. **Conclusión:** *Procletes levicarina* está presente en la costa oeste de la India.

Palabras clave: camarón pandálido, *Procletes*, Spence Bate, nuevo registro, Gujarat.

The genus *Procletes* Spence Bate, 1888 is a monotypic genus in the family Pandalidae Haworth, 1825. It contains only the single species *Procletes levicarina*, also known as carid prawn or Pandalid shrimp. *P. levicarina* was originally described as *Dorodotes levicarina* by Bate, 1888 on the basis of two male specimens, from the Arafura Sea, West of Torres Strait and South of Papua collected by H.M.S Challenger during the years 1873-76. The genus is distinguished from the other genera of Pandalid family by the presence of longitudinal carina on the lateral surface of the carapace and postrostral carina extends nearly to the posterior margin of carapace (Kim, Choi, Oh, Choi, & Lee, 2011). In a previous study we reported total 37 species of prawn and shrimps belonging to 16 genera and 6 families from Gujarat (Trivedi, Trivedi, Soni, Purohit, & Vachhrajani, 2015; Purohit & Vachhrajani, 2017). In the present study, *P. levicarina* is first time reported from

Gujarat state which is the only species representing the Pandalid shrimp fauna of Gujarat.

MATERIAL AND METHODS

The specimens were collected from the trawl catch Subhashnagar, Porbandar (Fig. 1) during the survey of shrimp fauna of Gujarat. All the specimens were preserved in 70% ethanol and brought to the laboratory. At the laboratory, morphological characters of the shrimp were photographed using stereo-microscope equipped with micro-cam and morphometric parameters were measured using vernier caliper (0,01mm accuracy). The taxonomy was confirmed to species level using various keys and references (Bate, 1888; Chace, 1985; Kim, Choi, Oh, Choi, & Lee, 2011). Specimens were deposited in the

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**FIRST RECORD OF STENOPODIDEAN SHRIMP, *MICROPROSTHEMA VALIDUM*
(CRUSTACEA: DECAPODA: SPONGICOLIDAE) FROM WEST COAST OF INDIA**
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ABSTRACT

In the present study stenopodidean shrimp, *Microprosthema validum* is first time reported from the West coast of India. This species is widely distributed along the Indo-Pacific region and previously reported from the Southeast coast of India. The details of morphological characters of the species are presented in the report.

Figure : 01

References : 11

Table : 00

KEY WORDS : *Microprosthema*, New record, Stenopodidean shrimp, West coast of India,

Introduction

The shrimp species of Genus *Microprosthema* are mostly free living inhabiting shallow coral reef, rocky shores, seagrass beds and rubble flats^{2,9,11}. A total of 16 species are described under genus *Microprosthema* worldwide¹¹ out of which two species, *M. validum* and *M. semilaeve* are reported from Indian waters^{3,6,7,8}. *M. validum* is widely distributed along the Indo-West pacific region⁴ and in Indian waters. It is so far reported only from Palk Bay and Gulf of Mannar located on East coast of India^{3,6}. The crustacean fauna of Gujarat state is scarcely studied¹¹ and to fulfill the lacuna of Information detail survey was carried out in different coastal areas of state for the collection of crustacean fauna. During the survey, one specimen of stenopodidae shrimp was collected, which is identified as *M. validum*. The present record shows distribution range extension of the species on the west coast of India. The morphological details of the species are given in the report.

Material and Methods

The specimen of the species was collected from the coral reef area of Pirotan Island (23°36' 14N; 69° 57' 30E), located in the territory of Marine National Park, Jamnagar district, Gujarat. Handpicking method was adopted for the collection of specimen during the low tide.

The fresh specimen was photographed and preserved in 70% alcohol for further identification. The examined specimen was deposited in the Zoology museum, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat, India with the museum accession number ZL-AR-PR-38. The measurements were taken in mm. The morphological terminology depicted¹⁰.

Abbreviation: TL: Total body length (tip of the rostrum to tip of the tail), Coll.: collector

Results and Discussion

Systematics

Order: Decapoda

Infraorder: Stenopodidea

Family: Spongicolidae

Genus: *Microprosthema*

Species: *Microprosthema validum* (Fig. 1)

Synonyms

Microprosthema valida

Stenopus robustus

Stenopusculus crassimanus

Microprosthema validum

Materials Examined

One male (TL-1.4 cm) (ZL-AR-PR-38), Pirotan

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Research Article

A SCITECHNOL JOURNAL

Eight New Records of Caridean (Crustacea: Decapoda) Shrimps From Shallow Water along the Coastal Area of Gujarat

Barkha Purohit and Kauresh D Vachhrajani*

Abstract

This paper reports eight species of caridean shrimps first time from the Gujarat coast i.e., *Alpheus edwardsii* (Audouin, 1826), *Alpheus lobidens* De Haan, 1849, *Alpheus pacificus* Dana, 1852, *Athanas dimorphus* Ortmann, 1894, *Lysmata vittata* (Stimpson, 1860), *Thor amboinensis* (de Man, 1888), *Cuapetes grandis* (Stimpson, 1860) and *Palaemon pacificus* (Stimpson, 1860). Present study fills gaps in the geographical distribution of these species that have previous records from the nearby areas.

Keywords

Caridean Shrimp; Alpheidae; Lysmatidae; Thoridae; Palaemonidae; New records; Gujarat

Introduction

Caridean shrimp fauna is the second most species rich taxon amongst decapoda crustacean, which includes 3438 species belonging to 389 genera [1]. Generally they occur from tropical to polar regions, in intertidal, sub-tidal and pelagic habitats, on soft and hard bottoms, or some can even be found associated with others organisms [2,3]. In India, this group is extensively studied by various authors [4-18]. The caridean shrimp fauna from the Indian water currently comprises 199 species belonging 78 genera, 18 families and 2 subfamilies [16].

In Gujarat, the caridean fauna is less studied than other crustaceans such as the infraorders Brachyura and Anomura. Previously 8 species of caridean have been reported from the coastal Gujarat. Of these, only 4 shallow water species have been reported so far [19-21]. Here we report a small collection of caridean shrimps made during the present study from 2014 to 2018.

Materials and Methods

In order to contribute to the knowledge of caridean shrimp fauna along the Gujarat coastline, a number of field trips were carried out during 2014 to 2018 to cover the 7 sampling station (Figure 1). Handpicking and handheld net method were adopted for collection of shrimps during low tide from the intertidal area. Shrimps were identified up to the species level using standard identification keys, monograms, and research articles. The total length (TL, from the

tip of the rostrum to the posterior end of the telson) and carapace length (CL, the posterior orbital margin to the posterior margin of the carapace), of each specimen were measured using a digital vernier caliper (accuracy 0.01 mm). Small specimens were measured using a stereomicroscope equipped with an imaging and measurement tool. All the specimens were stored in 10% formalin and deposited in Zoology Museum, Department of Zoology, The Maharaja Sayajirao University of Baroda, Vadodara with a unique code.

Results

Systematics

Order Decapoda Latreille, 1802

Infraorder Caridea Dana, 1852

Superfamily Alpheoidea Rafinesque, 1815

Family Alpheidae Rafinesque, 1815

Genus *Alpheus* Fabricius, 1798

Alpheus edwardsii (Audouin, 1826) (Figure 2)

Materials examined: (ZL-AR-PR-46), 1 female (TL-38.46 mm, CL-12.74 mm), Station 3 (22°19'56"N 68°56'58"E), coral reef, 11 November 2016, coll. Barkha Purohit. 2 male (TL-23.42 mm, CL-8.46 mm; TL-23.43 mm, CL-8.32 mm), 3 ovigerous female (TL-22.78 mm, CL-7.85 mm; TL-25.97 mm, CL-8.53 mm; TL-23.84 mm, CL-8.75 mm), Station 3 (22°19'56"N 68°56'58"E), coral reef, 13 December 2016, coll. Barkha Purohit. 3 male (TL-22.44 mm, CL-8 mm; TL-22.95 mm, CL-7.44 mm; TL-23.02 mm, CL-8.55 mm), 1 female (TL-30.42 mm,

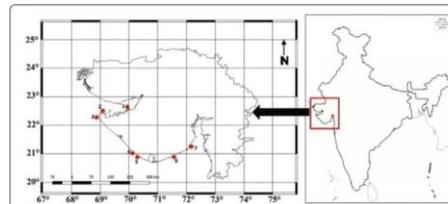


Figure 1: Map showing the location of the sampling stations along the Gujarat coast line: 1. Pirotan Is., 2. Okha, 3. Shivrajpur, 4. Veraval, 5. Sutrapada, 6. Unchakotda, 7. Koliyaak.



Figure 2: *Alpheus edwardsii* (Audouin, 1826), female (TL-38.46 mm) from Shivrajpur, Gujarat (India) (ZL-AR-PR-46), dorsal view.

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New records of prawns and shrimps (Crustacea: Decapoda) from Gujarat coast, India

Barkha Purohit and Kauresh D Vachhrajani

Abstract

In this study, total seven species of prawns and shrimps belonging to 3 infraorders (Penaeidea, Caridea, Gebiidea) are first time recorded from Gujarat coast. The infraorder Penaeidea shows highest diversity (4 species). The Caridea and Gebiidea, with 2 and 1 species respectively follow. Details of morphological characters and distribution records in Indian waters are discussed in the report.

Keywords: Prawn and Shrimps, new record, Penaeidae, Caridea, Gebiidea, Gujarat

1. Introduction

Prawn and shrimp fauna is amongst the highly diverse group of order decapoda consisting about 4048 species throughout the world^[1]. They are varying in size and widely distributed in marine, brackish and freshwater. Prawns are one of the most important compositions in the crustacean fishery and tropical marine food chain. Prawn fishery is one of the major resources of India, which includes 3.98 lakh tons (2008-10) of commercially important penaeid and non penaeid prawns^[2]. Radhakrishnan *et al.* (2012) listed occurrence of 437 species of prawn belonging to 131 genera and 30 families in Indian waters. Out of 437 species, 19 genera, 73 species under family Penaeidae Rafinesque, 1815; 5 genera, 20 species under family Solenoceridae Wood-Mason, 1891; 9 genera, 17 species under Hippolytidae Spence Bate, 1888 and 11 genera, 81 species under Sub-family Palaemoninae Rafinesque, 1815 (Family Palaemonidae Rafinesque, 1815) are reported from India^[3]. Gujarat state, located on the western proximity of India has longest coastline in the country which has rich crustacean diversity^[4]. A total of 30 species of prawns belonging to 12 genera, 5 families are reported from coastal water of Gujarat state^[3,4]. The present study was initiated by Gujarat Biodiversity Board, Gandhinagar, to document the crustacean fauna diversity of Gujarat. This study adds 7 more species in the list of prawns and shrimp occurring in Gujarat waters.

2. Material and Methods

The specimens were collected during the survey of crustacean fauna of Gujarat carried out between March 2014 and May 2015. The specimens were collected from intertidal area and commercial fishing trawlers. The specimens were photographed immediately after collection for fresh coloration and then preserved in 70% alcohol for further studies. The specimens were identified up to species level by comparing morphological characters with available illustrative keys, research papers and monographs^[2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19]. All the specimens were deposited in the Zoology Museum of the Department of Zoology, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat, India. Following abbreviation is used: TL (Total Length), Coll. (collectors). All the measurements are recorded in centimetre (cm).

3. Results and Discussion

In the present study seven species viz., *Megokris sedili* (Hall, 1961), *Megokris granulosus* (Haswell, 1879), *Parapenaeus fissuroides indicus* Crosnier, 1986, *Solenocera koelbeli* (De Man, 1911), *Latreutes anoplonyx* Kemp, 1914, *Palaemon serrifer* (Stimpson, 1860) and *Upogebia carinicauda* (Stimpson, 1860) are first time reported from the coastal waters of Gujarat, India.



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Telson abnormality in *Metapenaeus kutchensis* (Dendrobranchiata, Penaeidae) from Gulf of Kachchh, India

Barkha Purohit and Kauresh D Vachhrajani

Abstract

Metapenaeus kutchensis George, George and Rao 1963 is an endemic species distributed in the northwest coast of India. In this study, we documented the telson bifurcation in one male specimen collected from the Little Rann of Kachchh (LRK). Normally the telson in *M. kutchensis* is straight, triangular and elongated. Apart of this the specimen has identical characteristics of *Metapenaeus kutchensis*.

Keywords: Morphological abnormality, *Metapenaeus kutchensis*, endemic species, Gulf of Kachchh, telson bifurcation

1. Introduction

Metapenaeus kutchensis George, George and Rao 1963, is one of the endemic species of marine prawns known from the Gulf of Kachchh, distributed along the northwest coast of India^[1]. The Little Rann of Kachchh (LRK) supports the fisheries of juvenile *M. kutchensis* in shallow estuarine water, while adults support fisheries in coastal areas of Gujarat and Maharashtra^[2,3].

External morphological variation or abnormality in decapoda crustaceans is well documented phenomena^[4-8]. These external modifications are natural (during molting) or may be caused by biological and chemical agents^[9, 10]. In prawns and shrimps, deformities have been observed by many researchers which include abnormal number of spines on rostrum, dentition, undeveloped eye, telson setation, bifurcation of the rostrum and telson etc.^[11-14]. In penaeid prawn, the telson shape is stable within a species. The bifurcation of telson in penaeid prawn is previously reported by Aravindakshan and Pillai from Indian water^[15]. The purpose of this study is to present the information about telson abnormality in *Metapenaeus kutchensis*.

2. Material and methods

During the survey of crustacean fauna under project "Crustacean Biodiversity of Gujarat state", one male specimen showed the bifurcated telson, amongst a total collection of 38 specimens of *M. kutchensis*, which is collected from Chervari (Lat. 23°09'55" N Long. 70°53'54" E) located in Little Rann of Kachchh, Gujarat state, India on 26 September, 2014. The specimen were photographed after collection, preserved in 70% alcohol and brought to the laboratory. The male specimen measured 7.18 cm (Total Length) and was deposited in the museum of the Department of Zoology, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat, India under the registration number ZL-AR-PR-50.

3. Result and discussion

The abnormal telson length is 10.47 mm, with a bifurcation started at less than ¼ from the proximal margin (Fig. 1b). The left branch is 1.29 times longer than right branch. The branches form an angle of ca. 86.99°. In the normal specimen, telson is triangular, elongated and tapers into a sharp point. It is grooved on the dorsal side and with very minute dorso-lateral spinules (Fig. 1c). No other abnormality was recorded in this specimen.

In prawn and shrimps, the rostrum abnormality is more frequently reported than the telson abnormality^[11, 13, 15-18]. In *Parapenaeopsis stylifera*, from Mumbai coast, the telson bifurcation and presence of spines on the inner margins of telson were noted, where two spines