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Short Communication

First record of prawn *Leptocarpus potamiscus* (Kemp, 1917) (Crustacea: Decapoda: Palaemonidae) from Karnataka, West Coast of India

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Abstract
The study reveals the first record of prawn species *Laptocarpus potamiscus* (Kemp, 1917) from Karnataka coast, West Coast of India. The genus *Laptocarpus* mainly described by their prominent key characters *viz.*, presence of antennal spines, a prominent branchiostegal grooves and the absence of branchiostegal spines on the carapace. Globally, the genus *Leptocarpus* represents only three species with its Asian distribution, hitherto recorded from different localities across the Indian subcontinent. Specimen collected from Kali River estuary, Karwar being the first record from the Karnataka state. The morphological characters examined were similar to the description revealed for *L. potamiscus* by Kemp and Jayachandran. Hence, the study updates geographical distribution of *L. potamiscucs* from the Karnataka coast.

Keywords: Estuary; Karnataka; *Laptocarpus potamiscus*; prawn; taxonomy

1 | INTRODUCTION

Indian peninsula represents the high diversity of Caridean prawns consisting of 13 superfamilies distributed in 22 families representing 88 genus of which genus *Macrobrachium* consists of approximately 62 species (Radhakrishana *et al.* 2012). Caridean genus are biogeographically distributed from tropic to temperate region and generally colonized from freshwater to brackish water habitat. In the family Palaemonidae (Rafinesque, 1815) the genus *Leptocarpus* was created by Holthuis (1950) and included two species *Leander fluminicola* (Kemp, 1917) and *L. potamiscus* (Kemp, 1917) in this genus (Jayachandran 1992). Subsequently the recent checklist of prawn fauna of India by Radhakrishana *et al.* (2012) reported three species in the genus as *L. potamiscus* (Kemp, 1917), *L. fluminicola* (Kemp, 1917) and *L. kemp* (Jayachandran 1992).

Studies on the genus *Laptocarpus* are scant (but the larval stages were described by Rajyalakshsmy (1961) and Pillai (1973). *Laptocarpus potamiscus*, commonly known as Bombay prawn, was already reported in Maharashtra, Kerala, Andaman and Nicobar Islands (Jayachandran 1992; Radhakrishana *et al.* 2012). This paper describes occurrence of *L. potamiscus* from the Karnataka coast of India which is the first record of the species in Karnataka state.

2 | METHODOLOGY

2.1 Sampling area

The specimens of *Laptocarpus potamiscus* was collected from Kali River estuary (14°50′15″N, 74°10′14″E), Karwar, Karnataka, India (Figure 1) as a by catch of penaeid fishery. The sampling site was a backwater wetland zone with lush mangrove vegetation and 3.5 km away from the estuarine outlay into the sea.

2.2 Sample collection and identification

Specimens (*n* = 6 ovigerous female) were segregated and handpicked on 21 August 2019 at 1900 hours from the traditionally operated stationary bag net fishing gear with variable mesh size of 25 mm (opening of net) to 18 mm (cod end) along its 5 m length at a depth of 2.5 m along Kali River estuary. Fresh specimens were photographed in-situ and brought to the laboratory in an insulated cold container. Taxonomic identification was achieved by referring the description notes of Kemp (1917) and Jayachandran (1992). Further, specimens were preserved in 7% formalin and deposited in the Department of Marine Biology Museum (Ref. ID KWR-PR-LP-05-2019), Karnatak University, Dharwad's Post Graduate Centre, Karwar, Karnataka, India.

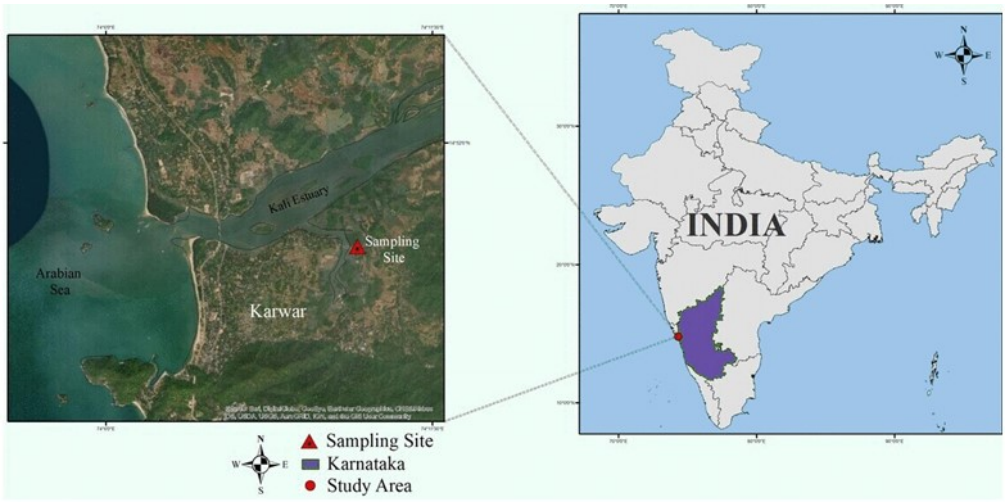

FIGURE 1 Map showing location of sampling site along Kali River estuary, Karnataka, West Coast of India.

2.3 Morphological characters examined and abbreviations used

For identification, common morphometric and meristic parameters were examined and measurements were carried out with the standard measuring scale. Following are the measurements description,

Total length (TL): tip of the rostrum to the posterior end of the telson (Figure 2a); rostrum length (RL): tip of the rostrum to the posterior orbital margin of the carapace, rostrum teeth count dorsal and ventral, shape of rostrum. (Figures 2a and 2b); carapace length (CL): anterior orbital margin to the posterior margin of the carapace, carapace with presence and absence of grooves and spines- branchiostegal grooves (Bg), antennal spine (As) (Figures 2a and 2c); structure of second pleopod (Figure 2d); telson length (Tsl): posterior base of the 6th somite to the end tip of the telson (Figure 2a) arrangement and position of spines on the endopod and exopod, outer short spine (oss) and inner long spine (ils) (Figure 2h).

3 | RESULT AND DISCUSSION

3.1 Systematic accounts - World Register of Marine Species (WoRMS) taxon details

Phylum: Arthropoda
Subphylum: Crustacea
Class: Malacostraca
Order: Decapoda
Family: Palaemonidae
Genus: *Leptocarpus* Holthuis, 1950
Species: *Leptocarpus potamiscus* (Kemp, 1917)

3.2 Synonym

Leander potamiscus Kemp, 1917

3.3 Material examined

Holotype: ovigerous female. TL, 49 mm; RL, 14 mm; CL, 8 mm; AL, 21 mm; Tsl, 6 mm (Figure 2a).

Rostrum- teeth count – dorsal- 7+1; ventral- 6 (Figure 2b).

Second chelate leg: ischium, 4mm; merus, 4 mm; carpus, 6 mm; propodus, 3 mm; dactylus, 4 mm (Figures 2d and 3b); egg, 0.2 mm (Figure 2i).

3.4 Description

Diagnosis and key for identification of *L. potamiscus* according to Kemp (1917) and Jayachandran (1992) are as follows:

Body form slender sub-cylindrical, medium size; rostrum long and well developed, basal crest of the rostrum slightly raised, dorsal and ventral teeth present, the upper margin (dorsal) has 7 teeth, of which 1 subapical tooth is separated from the basal teeth by a long unarmed interval, lower margin (ventral) is armed with 6 equidistant teeth, presence of setae between teeth of both dorsal and ventral margins (Figure 3a). Mandible palp with 3 segments (Figure 3f). Carapace smooth, only antennal spines present, distinct and sharp initiation of branchiostegial groove (Figures 2c and 3a). Abdomen somites smooth, first to third pleurae segments are broadly rounded, fourth and fifth pleurae are directed backwards, sixth pleurae is longer than fifth and somewhat pointed (Figures 2a and 2f). Pereopods- first and second peropods

very slender and chelate, fingers unarmed with tufts of setae and shorter than the palm, carpus (c) longer than chela, ischium (i) is equal to merus (m) (Figures 2d, 3b and 3c). Last three pairs of pereopods non-chelate with simple dactylus (Figures 2e and 3d). Telson - elongate, slender, triangular, dorsal with two pair of spines, posterior end sharp with two pairs of flanked spines, outer pair of spines much shorter than the inner, inner pair of spines overreaching the tip of the telson, plumose setae present between longer spines and tip of the telson (Figures 2f, 2h and 3e). Uropod - distinctly longer than telson (Figure 2f). Exopod - with setae and distolateral teeth (Figure 2g).

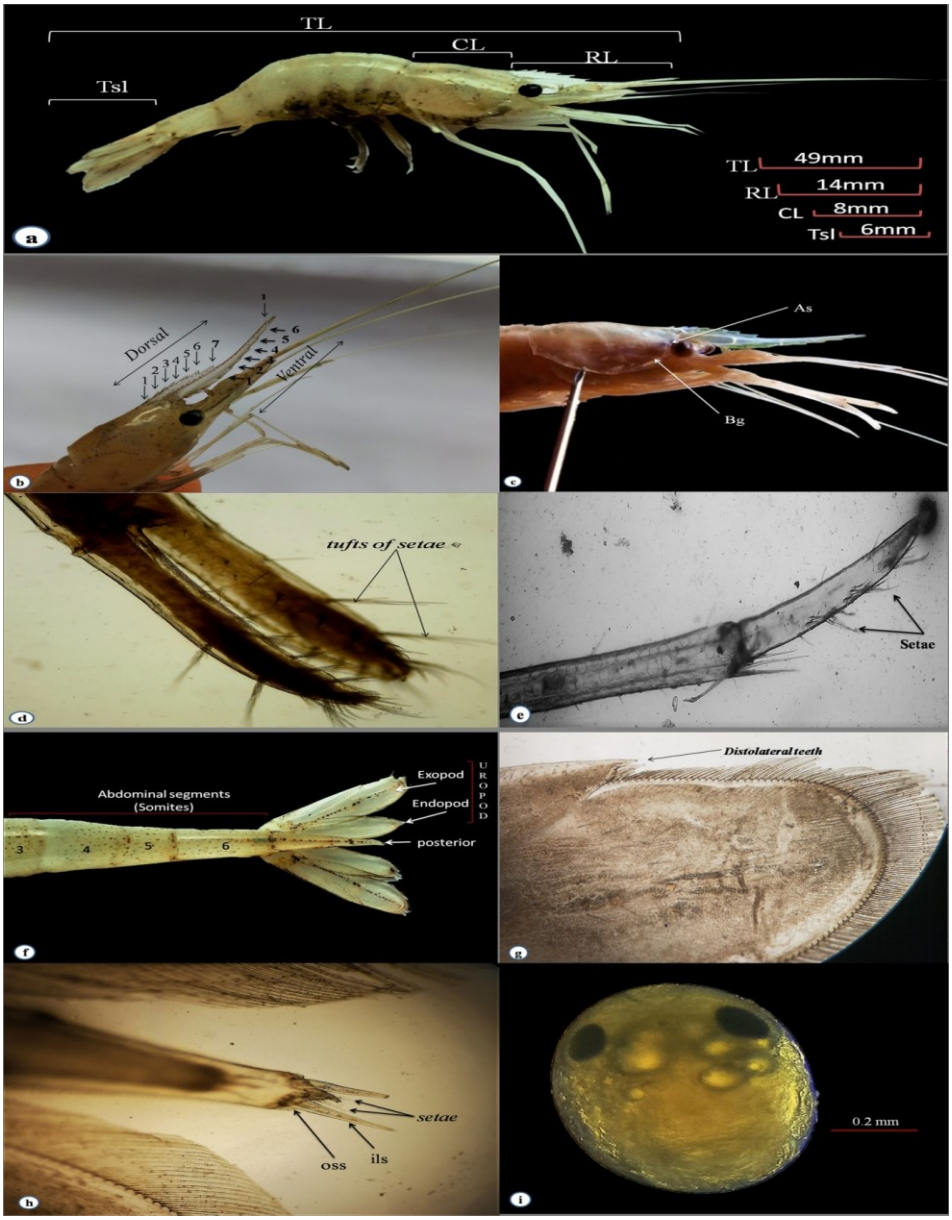

FIGURE 2 Live coloured pictures of *Laptocarpus potamiscus*. a, ovigerous female L. potamiscus (TL, total length; RL, rostrum length; CL, carapace length; Tsl, telson length), b, rostrum showing dorsal and ventral teeth count; c, carapace (As, antennal spine; Bg, branchiostegial groove), d, second pereopod – unarmed fingers with tufts of setae; e, third pleopod with setae; f, telson with exopod, endopod and posterior end of the telson; g, exopod with distolateral teeth; h, posterior end of the telson (oss, outer short spine; ils, inner long spine), i, egg.

3.5 Distributions

Globally distributed across India, Indonesia (Java, Sumatra), Malaysia (Peninsular Malaya), Thailand, China and Vietnam (Nguyen 1992). In Indian waters this species was reported from Maharashtra, Kerala, Andaman and Nicobar Islands (Jayachandran 1992; Radhakrishana *et al.* 2012). The present study reports the first occurrence of the species from Karnataka state.

3.6 Colour

Transparent; zoomed in parts of rostrum (forming a dotted line of chromatophores), carapace (horizontal and diagonal red pigment lines), abdominal somites, telson are distributed with red-brown chromatophores. Pereiopods are transparent. Eggs are green olive in colour.

3.7 Ecology

Specimens were collected from brackish water habitat. Locally, *Leptocarpus potamiscus* is consumed by local hamlet; it is sun-dried with other by catch of prawns and sold for smaller amount.

3.8 Remarks

The present specimen agrees well with descriptions of Kemp (1917) and Jayachandran (1992). Efforts were made to explain the detail illustration with microscope and photographic images for reference.

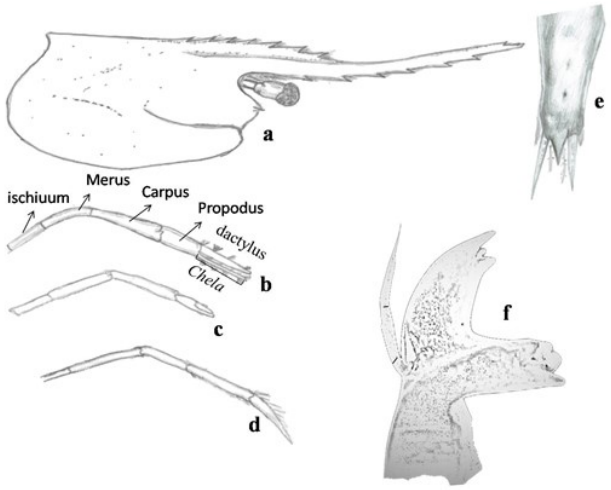

FIGURE 3 Sketched images of *Leptocarpus potamiscus*. a, carapace; b, second pereopod with chela; c, first pereopod with chela; d, third pereopod; e, posterior end of the telson; f, mandible palp with 3 segments.

4 | CONCLUSIONS

The study provides key information on the taxonomic characteristics of *L. potamiscus* collected from the Kali River estuarine zone. This is also the first record of the species from the Karnataka coast. Specimens (female) were collected during the monsoon season (from low salinity zone) which stipulates their preference to brackish water habitat for completing the lifecycle.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHORS' CONTRIBUTION

RP involved in sample collection, analysis and manuscript preparation; **SH** participated in manuscript preparation and critical review.

DATA AVAILABILITY STATEMENT

The specimen *Leptocarpus potamiscus* described in this paper was deposited in the Department of Marine Biology Museum, Karnatak University, Post graduate Centre, Karwar, Karnataka [Ref. KWR-PR-LP-05-2019] which can be freely accessible.

REFERENCES

Jayachandran KV (1992) On the genus *Leptocarpus* Holthuis, 1950 with the description of a new species (Decapoda Palaemonidae). Mahasagar 25(2): 129–134.

Kemp S (1917) Note on crustacean Decapoda in the Indian museum, IX. *Leander styliferus*, Milne Edwards and related forms. Records of the Indian Museum. 13: 203–231.

Nguyen VX (1992) Review of Palaemoninae (Crustacea: Decapoda: Caridea) from Vietnam, *Macrobrachium* excepted. Zoologische Mededelingen 66(2): 19–47.

Pillai NN (1973) Larval development and rearing of the brackishwater shrimp, *Leptocarpus potamiscus* (Kemp, 1917) Decapoda, Palaemonidae. Journal of Marine Biological Association of India 15: 669–684.

Radhakrishnan EV, Deshmukh VD, Maheswaradu G, Jose J, Dineshbabu AP, ... Raju B (2012) Prawn fauna (Crustacea: Decapoda) of India - an annotated checklist of the Penaeoid, Sergestoid, Stenopodid and Caridean prawns. Journal of Marine Biological Association of India 54(1): 50–72.

Rajayalakshmi T (1961) Larval development of *Palaemon lamarrei* H. Milne Edw. and *Leander fluminicola* Kemp. Journal of Zoological Society of India 13(2): 220–237.

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