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On new record of *Pagurus kulkarni* Sankolli, 1962 (Crustacea: Anomura: Paguridae) from Gujarat, India

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Abstract

In the present study the presence of hermit crab species *Pagurus kulkarni* Sankolli, 1962 was recorded for the first time from the coastal areas of Gujarat state, India. The species has wide spread distribution from Persian Gulf to Philippines. In India the species is reported from Maharashtra and Kerala. The species can be easily distinguished from closely related species since the dorsal surface of chelipeds is without median protuberances and has simple and sparse setae on chelipeds.

Keywords: New Record, *P. kulkarni*, Gujarat, India.

1. Introduction

Studies on hermit crab fauna of Indian water have very high significance. The first work on Indian hermit crab fauna was carried out by Henderson^[1], who examined the hermit crab specimens collected during "Challenger" expedition in adjacent sea areas of India. Alcock^[2] had published a monogram on hermit crab specimens available in the Indian Museum which is one of the pioneer documents available on the Indian hermit crab fauna. Thereafter, other researchers have worked on taxonomy of local hermit crab fauna^[3, 4, 5, 6] including recent discoveries of new species^[7, 8, 9]. Genus *Pagurus* Fabricius, 1775 is considered as one of the most diverse hermit crab genus in the family Paguridae, represented by about 170 species worldwide^[10], out of these, 5 species are reported from Indian waters viz. *P. punctulatus* Oliver-Heller, 1865; *P. carposforaminatus* (Alcock, 1905); *P. kulkarni* Sankolli, 1962; *P. pitagsaleei* Mclaughlin, 2002 and *P. spinossior* Komai, Reshmi and Bijukumar, 2013^[2, 11]. The coastal areas of Gujarat state are rich in marine biodiversity still the crustacean fauna of the state is poorly studied^[12]. So far total 7 species of hermit crab are reported from Gujarat state^[13, 14]. In the present study, *P. kulkarni* is reported for the first time from Gujarat state which is the only representative of the genus *Pagurus* of hermit crab fauna of Gujarat state.

2. Materials and Methods

The specimens examined during the present study were collected from the rocky intertidal area of Veraval (20° 54' 37" N, 70° 21' 04" E) located on the Saurashtra coast of Gujarat state. Handpicking method was adopted for the collection of specimen during the low tide from intertidal area. The hermit crabs were carefully removed from the gastropod shells and fresh photographs were captured. The sex or gender (females have gonopores present on the coxae of third pair of walking leg) of the animal was identified and shield length (SL) (the length of the shield is used to represent the size of the hermit crab) was recorded. The specimen were preserved in 70% alcohol and brought to the lab. The specimens were observed under stereo microscope for various morphological characters and detailed sketches were prepared. The specimens were identified up to species level and deposited in the Zoology Museum, Department of Zoology, Faculty of Science, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat, India.

3. Results and Discussion

3.1 Taxonomy

Order Decapoda

Infraorder Anomura

Superfamily Paguroidea

Family Paguridae

Genus *Pagurus* Fabricius, 1775**3. *Pagurus Kulkarni* Sankolli, 1962 (Figs. 1, 2)****3.2 Synonyms**

Pagurus kulkarni Sankolli, 1962: 136, figs. 1, 2; Tirmizi and Siddiqui, 1982: 89, figs. 44, 45; McLaughlin, 2002: 446; McLaughlin *et al.*, 2007: 258-259; Moradmad and Sari, 2007: 112-114, fig. 1

3.3 Material Examined: 1 ♂, ZL-AR-AN-11 (SW- 4.77, SL- 4.83), Veraval (20° 54' 37" N, 70° 21' 04" E), Gujarat, India, rocky intertidal habitat, 14th January, 2015 (Coll. Priya Joshi); 8 ♂, ZL-AR-AN-11 (1-8) (SW- 4.62, SL- 5.08; SW- 4.59, SL- 5.54; SW- 3.73, SL- 4.36; SW- 3.62, SL- 4.56; SW- 4.22, SL- 4.39; SW- 3.16, SL- 3.07; SW- 3.23, SL- 3.45; SW- 2.96, SL- 3.91), Veraval (20° 54' 37" N, 70° 21' 04" E), Gujarat, India, rocky intertidal habitat, 14th January, 2015 (Coll. Priya Joshi).

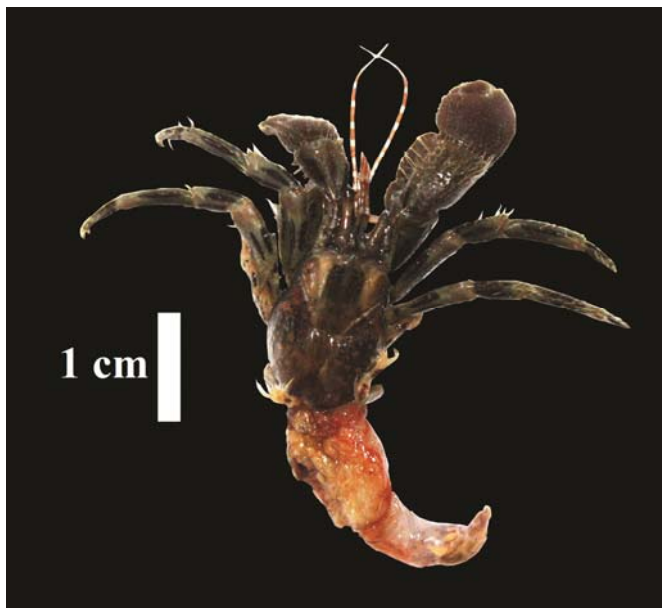


Fig 1: *Pagurus kulkarni* Sankolli, 1962 male, (SW- 4.77, SL- 4.83), ZL-AR-AN-11, Gujarat, India. Overall habitus, color freshly after collection.

3.4 Diagnosis: Shield longer than broad with short and rounded rostrum. Ocular peduncle moderately long, antennular and antennal peduncles longer than ocular peduncles, ocular acicles with terminal spinules (Fig. 2a). Cheliped unequal, right cheliped longer and stouter than left, dactylus with conical tubercle on the upper surface, palm outer surface granular, dorsal surface without protuberances, dorsomesial and dorso lateral margin with row of small tubercles, carpus dorsal surface weakly tuberculated; dorsomesial margin with row of spines; dorsolateral margin with small spinules; ventromesial margin developed into wing like projection; merus with venromesial margin also developed into wing like projection (Fig. 2b). Walking legs with dactylus shorter than propodus; ventral margin of propodus with 5 to 6 corneous spines; propodus dorsal surface covered with minute ridge (Fig. 2c). Telson with posterior lobes separated by slightly deep cleft; terminal margin with row of variable sized blunt spines (Fig. 2d).

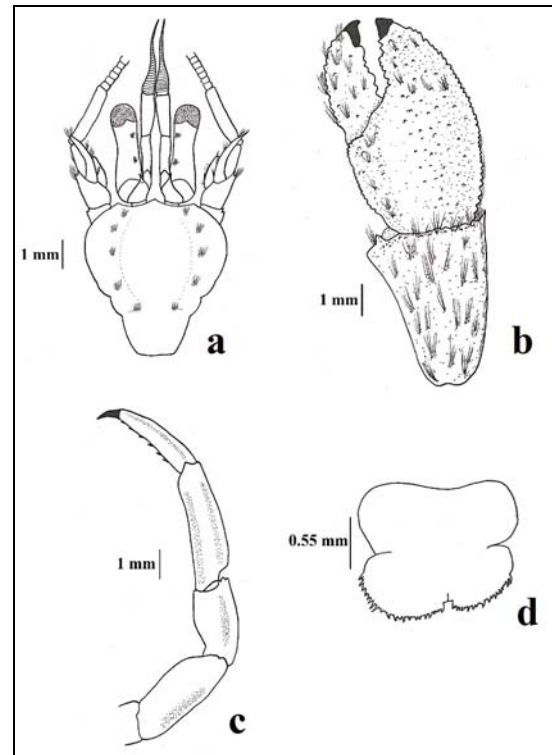


Fig 2: *Pagurus kulkarni* Sankolli, 1962, (a) Shield and cephalic appendages (b) Right Cheliped outer view (c) Right third walking leg outer view (d) Telson dorsal view.

3.5 Remarks: The specimens examined in the present study showed agreement with the original description [4] and illustrations of the *P. kulkarnii* [15, 16]. The color pattern of specimens examined in the present study showed variation with the specimen collected and illustrated from Taiwan by McLaughlin *et al.* [15]. The chelipeds of the Taiwan specimen are brownish rose with chocolate color bands while the specimen examined in the present study were not having any kind of banding pattern and are dark brown in color. The tips of the chelipeds are dark brown in color in Taiwanese specimen while it is white in the specimen examined in the present study.

3.6 Distribution

The species has wide spread distribution ranging from Gulf of Thailand to Gulf of Oman. The species is so far reported from Oman [16], Persian Gulf [17], Pakistan [18], Taiwan [15] and Philippines [19]. In India, the species is reported from Maharastra [4], Kerala [11] and now from Gujarat state.

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