



First record of *Arcania heptacantha* (De Man, 1907) (Crustacea: Decapoda: Leucosiidae) from west coast of India

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Short Communication

Abstract

Arcania heptacantha is reported and described herein for the first time from the west coast of India. Earlier only one species of the genus *Arcania* was reported from the West coast of India. *A. heptacantha* is different from closely resembled species *A. septemspinosa* in having uniformly granulated carapace and shorter merus of chelipeds in length. Taxonomic insight and distribution status of both the species have been given.

Keywords: *Arcania heptacantha*, first record, distribution, taxonomy, India.

Introduction

Twenty-one species of the genus *Arcania* were recorded worldwide (Ng *et al.*, 2008). *Arcania heptacantha* and *Arcania septemspinosa* are reported from various Indo-west Pacific region (Bell, 1855; Sakai, 1934; 1935; 1936; 1937; 1965; 1976; Serènet, 1976; Kensley, 1981; Tirmizi and Kazmi,

1986; Ng *et al.*, 2001; Poore, 2004; Galil and Ng, 2007; Ganmanee *et al.*, 2004; Pitcher *et al.*, 2007; Wisespongpan, 2011 and Galil and Ng, 2015). Henderson (1893) provided first description of *A. septemspinosa* from India. Thereafter, Alcock (1896) described *A. septemspinosa* from Andamans, Gangetic, Mahanadi delta, and southern India, Jeyabaskaran *et al.* (2000) and Gokul and Venkataraman (2010) described *A. heptacantha* from Gulf of Mannar biosphere reserve. *A. septemspinosa* was described from west coast of India by Chhapgar (1957) and Jeyabaskaran *et al.* (2002) and from east coast of India by Varadharajan and Soundarapandian (2014). Both the species were also listed from India by Krishnamoorthy (2009), Khan (2012), Roy and Nandi (2007; 2012), Venkataraman *et al.* (2002), Varadharajan *et al.* (2013), Roy (2013) and Beleem *et al.* (2014). Besides, common distribution in whole Indo-pacific region, taxonomic status of both closely related species was confusing as none of these study described both species at the same time. A revision of the Indo-Pacific crabs of the genus *Arcania* by Galil, (2001) provided, distinguishing characteristics of *A. heptacantha* and *A. septemspinosa*. However synonymized in Galil and Ng (2007). Present study reported *A. heptacantha* for the first time from the west coast of India and provided comparative account (Table 1) of *A. septemspinosa* and *A. heptacantha* reported from India.

Table 1. Diagnosis and comparisons

Sr. No	Diagnosis	<i>Arcania heptacantha</i> (De Man, 1905)	<i>Arcania septemspinosa</i> (Fabricius, 1787)	Present specimen (Fig. 1)
1.	Carapace	Rhomboid shaped, Carapace uniformly granulate (Galil, 2001).	Rhomboid shaped, bears a granulate ridge, running on the dorsal surface of the carapace to the intestinal spine (Galil, 2001).	Rhomboid shaped, Carapace uniformly granulate, as well as bears a granulate ridge, running on the dorsal surface of the carapace to the intestinal spine. (Fig.2A)
2.	Spines	Seven (Galil, 2001).	Seven (Galil, 2001).	Seven
3.	Frontal lobe	Sub quadrate (Galil, 2001).	Sub quadrate, separated by slight notch, minutely granulated anteriorly, setose (Galil, 2001).	Sub quadrate, separated by notch.
4.	Lateral spines	Lateral spine long, robust, basally ringed with periform granules. Posterolateral margin medially set with short, upcurved granulate spines (Galil, 2001).	Lateral spine robust, slightly upcurved, two thirds as long as carapace, granulate throughout, granules smaller distally. Posterolateral margin medially set with short, upcurved, granulate spine. (Galil, 2001).	Lateral spine long, curved downward, granulate throughout, granules smaller distally.
5.	Intestinal spine	Intestinal spine upcurved, granulate. Posterior spines dorso-ventrally flattened, granulate. (Galil, 2001).	Intestinal spine long, upcurved, granulate. Posterior spines slender, dorso-ventrally flattened, granulate. (Galil, 2001).	Intestinal spine long, slightly left, upcurved to the carapace, granulate. In posterolateral region other posterior four spines slightly up-curved.
6.	Chelipeds	Chelipeds slender, long, granulate, granules larger basally (Galil, 2001).	Chelipeds slender, long, granulate, granules larger basally (Galil, 2001).	Chelipeds slender, long, merus, carpus and palm granulate, granules larger basally.
6a.	Merus	Cheliped merus Shorter than carapace (Galil, 2001).	Cheliped merus in male up to 1.4 as long as carapace (Galil, 2001).	Merus shorter than carapace, entirely covered with pearly white granules.
6b.	Carpus	Minutely granulate (Galil, 2001).	Minutely granulate (Galil, 2001).	Minutely granulate.
6c.	Propodus	Minutely granulate (Galil, 2001).	Minutely granulate (Galil, 2001).	Minutely granulate.
6d.	Fingers	-	Fingers slender, as long as palm (Galil, 2001).	Fingers slender, as long as palm, inner border of dactylus toothed.
7.	Ambulatory legs	Filiform (Galil, 2001).	Filiform; smooth, subcylindrical (Galil, 2001),	Filiform, subcylindrical.
7a.	Meri	Basally granulate (Galil, 2001).	-	Merus smooth.
7b.	Propodi	Lower margin granulate (Galil, 2001).	-	Smooth.
7c.	Dactylus	Medially carinate (Galil, 2001).	-	Dactylus fringed with setae on both margin
7d.	Male abdominal segment	Lateral margins of sixth abdominal segment straight, basio-lateral regions of fused segment inflated (Galil, 2001).	Lateral margins of sixth abdominal segment straight, basio-lateral regions of fused segment inflated (Galil, 2001).	Lateral margins of sixth abdominal segment straight, basio-lateral regions of fused segment inflated. (Fig. 2B)
8.	First pleopod	Sinuuous, slender distally (Galil, 2001).	Slightly sinuous, slender distally (Galil, 2001).	Sinuuous, Slender distally, scooped (funnel shaped) at tip. (Fig. 2D)
9.	Second pleopod	-	-	Second pleopod slender, bulge shaped tip. (Fig. 2D)
10.	Colour	Pale pinkish, cheliped hands and finger white (Galil, 2001).	Streaky and patchy red white (Galil, 2001).	Pale pinkish-white

Material and methods

A single specimen was collected from trawl by-catch of the Nava Bandar (N 20°42.193' E 070°58.571') fish landing centre of Gujarat, West coast of India (Fig. 1). The specimen was preserved in 10% buffered formalin and transferred to departmental laboratory where it was identified through standard keys. Voucher specimen was deposited in the museum of Department of Life Sciences, Maharaja Krishnakumarsinhji Bhavnagar University, Bhavnagar, India. Morphological features i.e. *CL= Carapace Length *CW= Carapace Width, G1= first pleopod, G2 = Second pleopod, were measured by using standard Vernier (0.01

LS). (* indicates: CL and CW measured without spines).

Results and discussion

SYSTEMATICS

Order : Decapoda Latreille, 1802
Superfamily : Leucosioidea Samouelle, 1819
Family : Leucosiidae Samouelle, 1819
Subfamily : Ebaliinae Stimpson, 1871
Genus : *Arcania* Leach, 1817

***Arcania heptacantha* (De Man, 1907)** (Fig. 2)

Synonymy: *Iphis heptacantha* De Haan, 1861
Iphis heptacantha de Haan in Herklots, 1861: 27

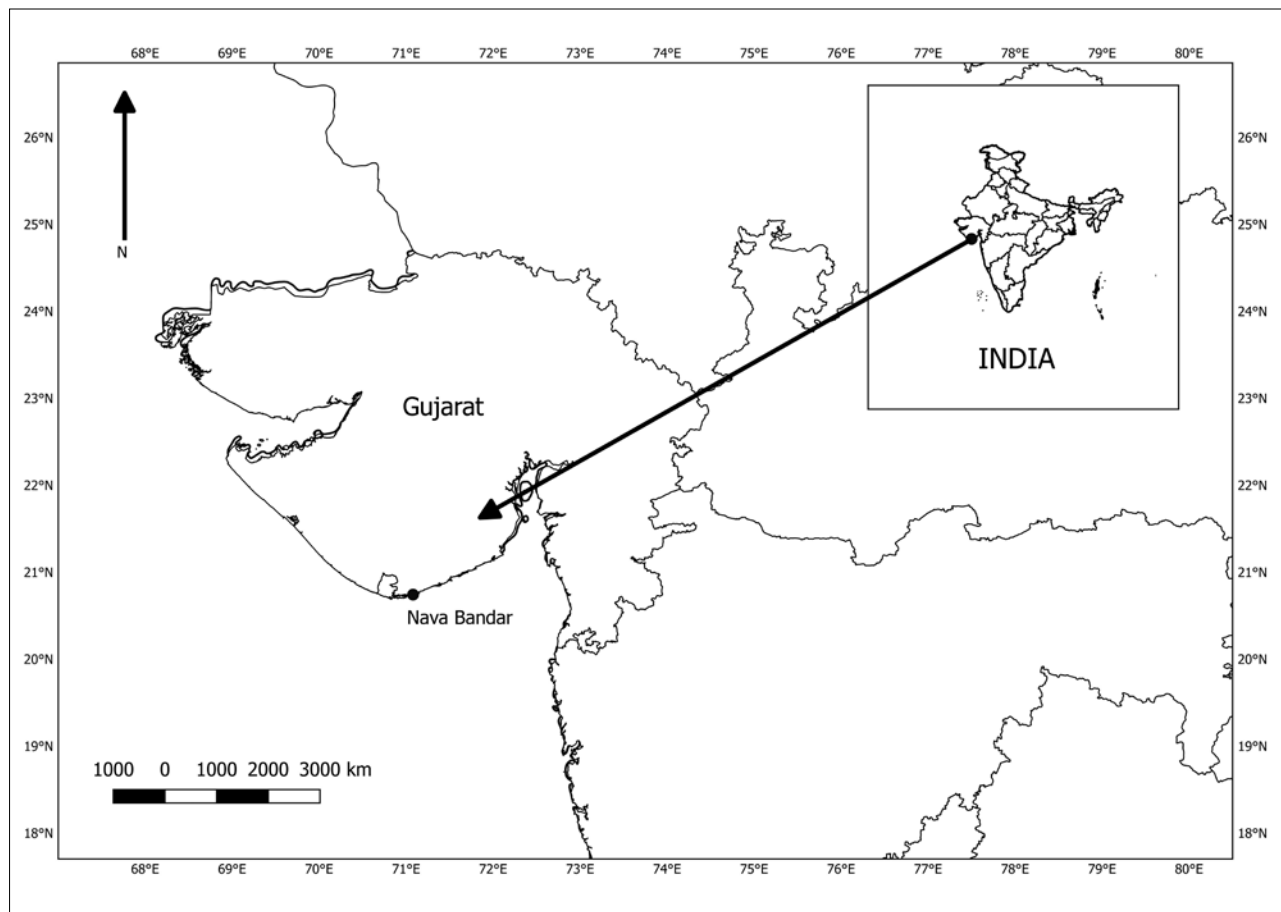


Fig. 1. Map of collection site.

Specimen Examined

Adult male, (CL 17.3 mm), (CW 17.8mm), (G1 length 9.5mm), (G2 length 3.2mm), Collected by Imtiyaz Beleem and Paresh Poriya, 16th September 2015. Voucher/Museum ID: LSAIAB17.

Diagnosis

Carapace rhomboid shaped, uniformly granulate, as well as bears a granulate ridge, running on the dorsal surface of the carapace to the intestinal spine. Frontal lobe depressed and sub quadrate, separated by notch. Lateral spines long, curved downward, granulate throughout, granules smaller distally. Intestinal spine slightly left, upcurved to the carapace, granulate. In posterolateral region, posterior four spines small, slightly upcurved. Chelipeds slender, long; merus shorter than carapace, entirely covered with pearly white granules; carpus minutely granulate; propodus less granulate; fingers as long as palm, inner border of dactylus toothed. Ambulatory legs subcylindrical; merus and propodus smooth; dactylus fringed with setae on both margin. Lateral margins of sixth abdominal segment straight, granulate entirely. G1 (Fig. 2D) slender distally, scooped (funnel shaped) at tip and G2 (Fig.

2D) slender, bulge shaped tip.

Remarks

The specimen observed in the present study resembles *Arcania septemspinosa* and *Arcania heptacantha* in some characteristics like carapace shape, cheliped, ambulatory legs and pleopods morphology. It shows similarity with *A. heptacantha* in having cheliped merus size shorter than carapace and uniformly granulated carapace. On the other hand, it resembles *A. septemspinosa* in having a granular ridge, running dorsally on the carapace to the intestinal spine. Interestingly, the lateral spines are more curved downward as compared to *A. septemspinosa* and *A. heptacantha*. It shows more similarity in shape of male first pleopod of *A. heptacantha*, first pleopod slender distally with scooped (funnel shaped) at tip. However, according to Galil (2001) the present specimen has shorter merus than carapace and uniformly granulated carapace indicating the species is *A. heptacantha*.

Distribution

Arcania heptacantha: Philippines (Serène, 1976); Indo-Pacific

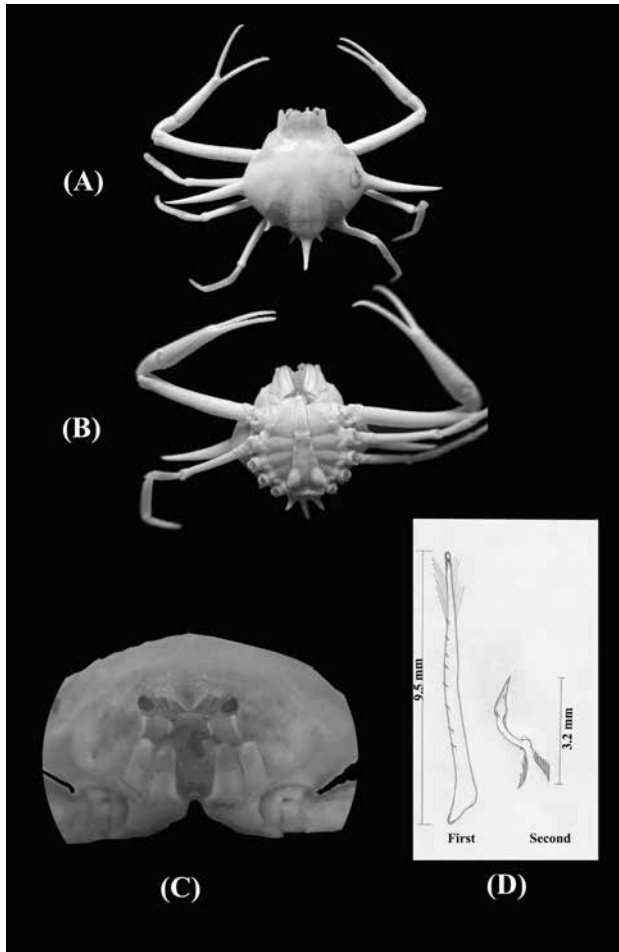


Fig. 2. *Arcania heptacantha* (A) Dorsal view (B) Ventral view (C) Mouth Part (D) First and second Pleopod (G1 and G2).

(Kensley, 1981); Japan (Sakai, 1934; 1935; 1936; 1937; 1965; 1976); Japan, China, Taiwan, Hong Kong, Singapore (Galil, 2001); Central Japan (Ganmanee *et al.*, 2004); Gulf of Mannar (Jeyabaskaran, 2000; Gokul and Venkataraman, 2010; Khan, 2012); Papua New Guinea (Galil and Ng, 2015). Presently it is reported from Gujarat, west coast of India.

Arcania septemspinosa: London (Bell, 1855); Madras, Indian Seas, Malay Archipelago, China (Henderson, 1893); Andamans, Arakan, Gangetic and Mahanaddi Deltas, Madras coast, Persian Gulf (Alcock, 1896); Gulf of Kachchh (Chhapgar, 1957); Indo-Pacific (Kensley, 1981); Karachi, Indo-Pacific, Red Sea, Persian Gulf, Bay of Bengal, Andaman, Arkan Coast, Malay Archipelago and Hong Kong (Tirmizi and Kazmi, 1986); Thailand (Ng *et al.*, 2001); Fiji, Australia, Indonesia, Philippines, Vietnam, Gulf of Thailand, India, Madagascar, Mozambique Channel, South Africa, Persian Gulf, Gulf of Aden, Red Sea (Galil, 2001); Red Sea, Persian Gulf, Malay Archipelago and Hong Kong, East and West Coast of India, Andaman & Nicobar (Jeyabaskaran, 2002), Indo-West Pacific (Poore, 2004); across

Indo-West Pacific region (Galil and Ng, 2007), Vanuatu (Galil and Ng, 2010), Gulf of Mannar (Khan, 2012); East coast of India (Varadharajan and Soundarapandian, 2014).

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