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FIRST REPORT OF SAND CRABS *ALBUNEA OCCULTA* BOYKO, 2002 AND *A. SYMMYSTA* (LINNAEUS, 1758) (CRUSTACEA: ANOMURA: ALBUNEIDAE), FROM SOUTHWEST COAST OF INDIA

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Abstract: The paper records the occurrence of two species of mole crabs, *Albunea occulta* Boyko, 2002 and *Albunea symmysta* (Linnaeus, 1758) from the Kerala coast of India. Both the species are recorded for the first time from the southwest coast of India.

Keywords: Albuneidae, *Albunea*, mole crab, Kerala, India

Albuneidae Stimpson, 1858 is a poorly studied family of specialized fossorial sand crabs, represented by 12 genera (Boyko, 2002) and 50 extant and nine fossil species (De Grave *et al.*, 2009). Boyko and Harvey (1999) summarized the Indo-west Pacific species of Hippoidea and Boyko (2002) provided a comprehensive revision of both fossil and extant sand crabs of the family Albuneidae. From India *A. occulta* was recorded from the Andaman and Nicobar islands (Marimuthu *et al.*, 2015), while *A. symmysta* was reported from the east coast of India (Boyko, 2002). This paper records the occurrence of both the species from southwest coast of India.

Order: Decapoda Latreille, 1802
Infraorder: Anomura MacLeay, 1838
Superfamily: Hippoidea Latreille, 1825
Family: Albunidae Stimpson,1858
Genus: *Albunea* Weber, 1795

***Albunea occulta* Boyko, 2002** (Fig. 1)

Albunea symnista [sic]: Gordon, 1938: 187 (part); *Albunea symnista* Sere'ne and Umali, 1965: 90–95 (part); *Albunea symnista* Miyake, 1991: 157, pl. 53, fig. 2; *Albunea symnista* Asakura, 1995: 376, fig. 21–285 (not *Albunea symmysta* (Linnaeus, 1758)); *Albunea symmista* [sic]: Miyake, 1965: 651 (not *Albunea symmysta* (Linnaeus, 1758)).

Materials examined: Two males, (carapace length 6.3, 10.3 mm; carapace width 2.4, 3.3mm), collected from Sakthikulangara harbour (08^0 30' N lat.; 76^0 53.3' E long.), Kerala, commercial fishing trawler, coll, Reshmi R.; one female (carapace length 10.7 mm, carapace width 3.7 mm) collected from Jeppiaar fishing harbor, Muttom, Tamil Nadu, commercial trawler, coll. Suvarna Devi S.). The voucher specimens are deposited at the museum collections of Department of Aquatic Biology and Fisheries, University of Kerala (DABFUK/AR/AN), India.

Description: Carapace wider than long with lightly setose grooves. Anterior margin slightly concave with 8–11 spines on either side of ocular sinus. Narrow lateral elements present on the setal field. Small and acute rostrum, not reaching proximal margin of ocular plate. Ocular plate triangular. Distal peduncular segments elongate, dorsoventrally

Fig. 1. *Albunea occulta* Boyko, 2002; carapace length 10.3mm

Fig. 2. *Albunea symmysta* (Linnaeus, 1758); carapace length 9.2 mm

flattened and triangular, tapering at tip, lateral margins convex, mesial margins straight. Cornea at tip. Smoothly concave ocular sinus, with 1-2 large spines and 2-3 small spinules. Antennae long and with sparse setae on dorsal and ventral surfaces. CG1 parallel to anterior margin of carapace, strongly crenulate with separate posterior lateral elements; Smooth mesogastric region; CG2 divided into 1-3 small medial elements; CG3 divided into 2 short medial and 2-4 longer lateral elements. CG4 with 1-2 short medial elements placed between longer supralateral elements of CG4.

Hepatic region smooth; epibranchial region generally triangular, smooth. Metagastric region smooth; CG5 present as two triangular elements. CG6 and CG7 separate; CG6 strongly crenulate, CG7 oblique, not reaching lateral margins of median segment of CG6. Cardiac region smooth; CG8 is broken, present as one long or two short lateral elements. CG9 present as two short lateral grooves with gap at midline. CG10 present as two short lateral elements. CG11 present as one long or two short medial elements; posterior submarginal groove entire. Branchial region with numerous short, transverse rows of setae laterally.

Pereopod I with dactylus curved and tapering; Propodus with dorsal margin unarmed, lateral surface with numerous short, transverse rows of setose rugae; ventral margin distally produced into acute spine; carpus with strong corneous tipped spine in dorsodistal angle; Merus unarmed. Pereopod II with dactylus smooth, heel produced, tapered, and subacute; propodus with dorsal surface smooth, ventral margin inflated and rounded; carpus strongly produced and rounded dorsodistally. Merus with large median decalcified area in lateral surface, with few scattered tufts of long plumose setae on surface and on distodorsal margin; Pereopod III dactylus with base to heel concave, heel narrow, tapering, projecting and acutely produced. Propodus with lateral surface smooth, simple ventral margin; mesial surface smooth, with few scattered setae. Carpus produced dorsodistally, tip rounded, dorsolateral margin unarmed; lateral surface slightly rugose dorsodistally; mesial surface smooth. Merus smooth, with large decalcified area in lateral surface medially; dorsal and ventral margins unarmed; mesial surface smooth. Dactylus of pereopod IV with sinuous from base to tip, with low rounded heel and shallow indent. Telson of male broadly triangular, laterally produced, with broadly rounded tip; thickly calcified medially, inflated dorsally; female with flattened, ovate, and evenly calcified telson with slightly produced tip.

Remarks: The species shows a distribution range from southern Japan southward to the eastern and western coasts of Australia, Taiwan, Philippines, Queensland, New southern Wales (Boyko, 2002). *A. occulta* was recorded from the Andaman island of India (Marimuthu *et al.,* 2015). However, it was not recorded from the coastal regions of the mainland. The present record of this species from the southwest coast of India shows its extended distribution in the western Indian Ocean.

***Albunea symmysta* (Linnaeus, 1758)** (Fig. 2.)

Cancer Symmysta Linnaeus, 1758: 630; *Cancer Gymnista* [sic]: Houttuyn, 1769: 422; *Cancer dorsipes*: Herbst, 1791: 5–8, pl. 22, fig. 2; *Albunea symnista* [sic]: Weber, 1795: 94; *albunea symnista* [sic]: Latreille, 1803: 172, pl.51, fig. 4.; *Albunea dorsipes*: Herbst, 1804: 31 (list) (not *Notopus dorsipes* (Fabricius, 1793)); *Cancer lymnista* [sic]: Froriep, 1806: 183 (list);*Albunea symmysta*: Ortmann, 1896: 224. – Ortmann, 1901: 1276, pl. 72, fig. 3, pl. 93, fig. 4,pl. 104, fig. 2.

Material examined: One female, (carapace length 9.2 mm), collected from Valiathura, Thiruvananthapuram district, Kerala, Beach seine, coll. Robert P. The reference material is deposited at the museum collections of Department of Aquatic Biology and Fisheries, University of Kerala (DABFUK/AR/AN), India.

Description: Carapace wider than long with lightly setose grooves. Anterior margin concave with 11-17 spines present on either side of ocular sinus. Rostrum small and forms actute tooth, not reaching proximal margin of triangular ocular plate. Ocular peduncle dorsoventrally flattened distally, triangular and tapering at tip; lateral margins broadly convex, mesial margins straight. Ocular sinus smooth and concave with 2-4 spinules. Ocular plate triangular with deep median indentation. Ocular peduncles elongate, subtriangular and with convex lateral and straight mesial margins. Corneas present at the lateral margins of distal end of ocular peduncle. Antennules narrow at the proximal end expanding twice its width at the distal end. Antenna longer than wide with long plumose setae on dorsal and ventral margins. CG1 parallel to anterior margin of carapace, crenulate and forms medial fragments, separate posterior lateral elements present; CG2 absent; CG3 broken into 5-6 short elements between posterior lateral elements of CG1, CG4 with two short anteriorly placed medial elements; CG5 contains two triangular elements; CG6 and CG7 separate, CG6 crenulate and CG7 oblique; CG8 broken and forms 2-4 medial elements; CG9 present as two short lateral grooves with gap at midline; CG10 and CG11 absent.

Hepatic and cardiac regions are smooth. Hepatic region with setose groove at lateral marin. Numerous short and transverse rows of setae present in the anterior half of branchial region, posterior margin deeply convex. Dactylus of pereopod I curved and tapering; smooth lateral and mesial surface and with long plumose setae on the dorsal margin. Dactylus of pereopod II smooth, heel produced, tapered, and subaute. Dactylus of pereopod III concave with heel tapering and acute. Dactylus of pereopod IV sinuous at base to tip, convex proximally, subacute heel with deep indent. Females with uniramous and paired pleopods while males lack pleopods. Male with broadly triangular and laterally produced telson. Telson broadly rounded with thick calcification medially. Females with flattened, ovate and evenly calcified telson.

Remarks: Reported from east coast of India (Madras and Pondicherry), Southeast Asia to Philippines, Indonesia, Queensland and Lord Howe Island, Australia (Boyko, 2002). This is the first record of the species from the southwest coast of India.

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