



A new species of *Munidopsis* from a seamount of the Southwest Indian Ocean Ridge (Decapoda: Munidopsidae)

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Abstract

Wood and whale bone colonisation experiments were undertaken on the Southwest Indian Ocean Ridge, 18 November 2009. Later, 14 December 2011, squat lobsters were recovered from the submerged wood and assigned to *Munidopsis* sp. Further study indicated that the specimens belonged to the group of species having a rostrum without lateral spines, presence of two strong epigastric spines, unarmed abdominal segments, one dorsal eye-spine, and with the second pereopod not reaching the end of the first. They were similar to *M. hemingi* Alcock & Anderson, 1899 but differed in that the epigastric spines are well developed (vs. tubercles in *M. hemingi*), the lateral margins of the carapace are straight (vs. more convex in *M. hemingi*), the eye has a tubercular process mediodorsally (vs. a papilliform spinule at mesial angle) and the epipods on the fourth pereopod were absent (vs. present in *M. hemingi*). Consequently the *Munidopsis* specimens from the Southwest Indian Ocean Ridge were considered to be an undescribed species.

Key words: Wood and whale bone, colonisation experiments, Southwest Indian Ocean Ridge, *Munidopsis* sp. nov.

Introduction

The family Munidopsidae contains a large number of species, mostly included in the genus *Munidopsis* Whiteaves, 1784 (Ahyong *et al.* 2010). The Indian Ocean harbours a large number of species of this genus (Baba *et al.* 2008), most of them collected during different deep-sea expeditions along the western and central basins (e.g. Macpherson 2007; Cubelio *et al.* 2008) and eastern basin (e.g. Poore *et al.* 2008; Taylor *et al.* 2010), although a large number of species still remains undescribed (Appeltans *et al.* 2012). Wood and whale bone colonisation experiments were deployed by RV *Dr. Fridtjof Nansen* on the Atlantis Bank (32°42.71S, 57°16.31E), a seamount of the Southwest Indian Ocean Ridge at a depth of ca. 750 m, 18 November 2009. These were recovered on 14 December 2011, using the ROV Kiel 6000 deployed from the RRS *James Cook*. A number of squat lobsters was collected from the wood experiment only and initially attributed to the genus *Munidopsis*. This material was later re-examined and considered to be an undescribed species. Some munidopsids are mainly thought to be opportunistic scavengers that attend wood falls and whale falls (Turner 1977; Bennett *et al.* 1994; Goffredi *et al.* 2004; Samadi *et al.* 2010; Hoyoux *et al.* 2012) but it was recently shown that at least one species, *Munidopsis andamanica*, is actually adapted to feeding on wood (Hoyoux *et al.* 2009). The aim of the present study is to describe this new *Munidopsis* species collected from these interesting habitats.

Material and methods

The terminology used follows Baba *et al.* (2009). The size of the specimens is indicated by the postorbital carapace length. Measurements of appendages are taken in dorsal (pereiopod 1), lateral (antennule, pereiopods 2–4) and ventral (antenna) midlines. Ranges of morphological and meristic variations are included in the description, with the holotype characters in square brackets. Abbreviations used are: Mxp = maxilliped; P1, pereiopod 1; P2–4, pereiopods 2–4 (walking legs 1–3), ovig. = ovigerous. The type material is deposited in the Natural History Museum, London (NHMUK) and Oxford University, Museum of Natural History (OUMNH).

Systematics

Family Munidopsidae Ortmann, 1898

Munidopsis Whiteaves, 1784

Munidopsis mandelai sp. nov.

(Fig. 1)

Material examined. Holotype. Southwest Indian Ocean Ridge. Atlantis Bank. ROV Kiel 6000 deployed from RRS *James Cook*, 32°42.71S, 57°16.31E, ca. 750 m, 14 December 2011: ♂ 7.2 mm (NHMUK 2013.1013; ID 8:29).

Paratypes. Southwest Indian Ocean Ridge. Atlantis Bank. ROV Kiel 6000 deployed from RRS *James Cook*, 32°42.43S, 57°16.48E, 703 m, 10 November 2011: 1 ♂ 5.5 mm (JC066-3698, OUMNH.ZC.2013-01-004). — 32°42.658S, 57°16.371E, 740 m, 9 December 2011: 1 ♂ 9.0 mm (JC066-3660, OUMNH.ZC.2013-01-005). — 32°42.71S, 57°16.31E, ca. 750 m, 14 December 2011: 3 ♂ 5.4–8.5 mm, 2 ♀ ovig. 8.0–9.0 mm, 1 ♀ 5.1 mm (NHMUK 2013.1014–1019).

Southwest Indian Ocean Ridge. Middle of What Seamount. ROV Kiel 6000 deployed from RRS *James Cook*, 37°57.915S, 50°24.426E, 1135 m, 1 December 2011: 1 ♀ 7.3 mm (JC066-3497, OUMNH.ZC.2013-01-006).

Etymology. This species is named for Nelson Rolihlahla Mandela, South African anti-apartheid revolutionary, President of South Africa from 1994 to 1999, Father of a Nation, Elder Statesman, and a remarkable man.

Description. *Carapace* (Figs. 1A, B): Slightly longer than broad; dorsal surface moderately convex from side to side, covered with small squamae, nearly devoid of setae; 2 well developed epigastric spines; regions well delineated by furrows including distinct anterior and posterior cervical grooves. Cardiac region bluntly triangular, well delineated. Ridge anterior to posterior margin preceded by deep furrow. Rostrum narrow triangular, horizontal in lateral view, tip slightly upwards directed, $0.4 \times$ length of remaining carapace, and $0.3 \times$ as wide as carapace breadth, dorsal surface with longitudinal carina, ending at epigastric region; lateral margins carinate. Frontal margin with antennal spine, concavely transverse behind ocular peduncle, concave between antennal spine and anterolateral corner of carapace. Lateral margins weakly convex and subparallel, anterolateral angle with blunt spine, slightly smaller than antennal spine, two blunt spines on anterior branchial margin; end of anterior cervical groove with distinct notch, end of posterior cervical groove with shallow notch, followed by one blunt spine. Ptergostomial region granulated, anterior margin blunt, angular.

Sternum (Fig. 1C): As long as wide, maximum width at level of sternite 7. Sternite 3 moderately broad, $2.8 \times$ broader than long, anterior margin divided into 2 lobes by median notch, lateral margin of each lobe convex. Sternite 4 moderately wide anteriorly; surface depressed in midline; greatest width nearly $2.6 \times$ that of sternite 3. Sternites 3–4 with some short setose scale-like ridges.

Abdomen (Figs. 1A, B): smooth, unarmed; tergites 2–3 each with 2 slightly elevated transverse ridges; tergites 4–6 lacking posterior ridge; tergite 6 with weakly produced posterolateral lobes and nearly transverse posteromedian margin.

Telson (Fig. 1D): composed of 8 plates; posterior plates combined nearly $1.4 \times$ as wide as long.

Eye (Figs. 1A, B): Peduncle scarcely movable, with tubercular process mediodorsally; cornea subglobular, as wide as eyestalk, with blunt spine between eye and antennal peduncle.

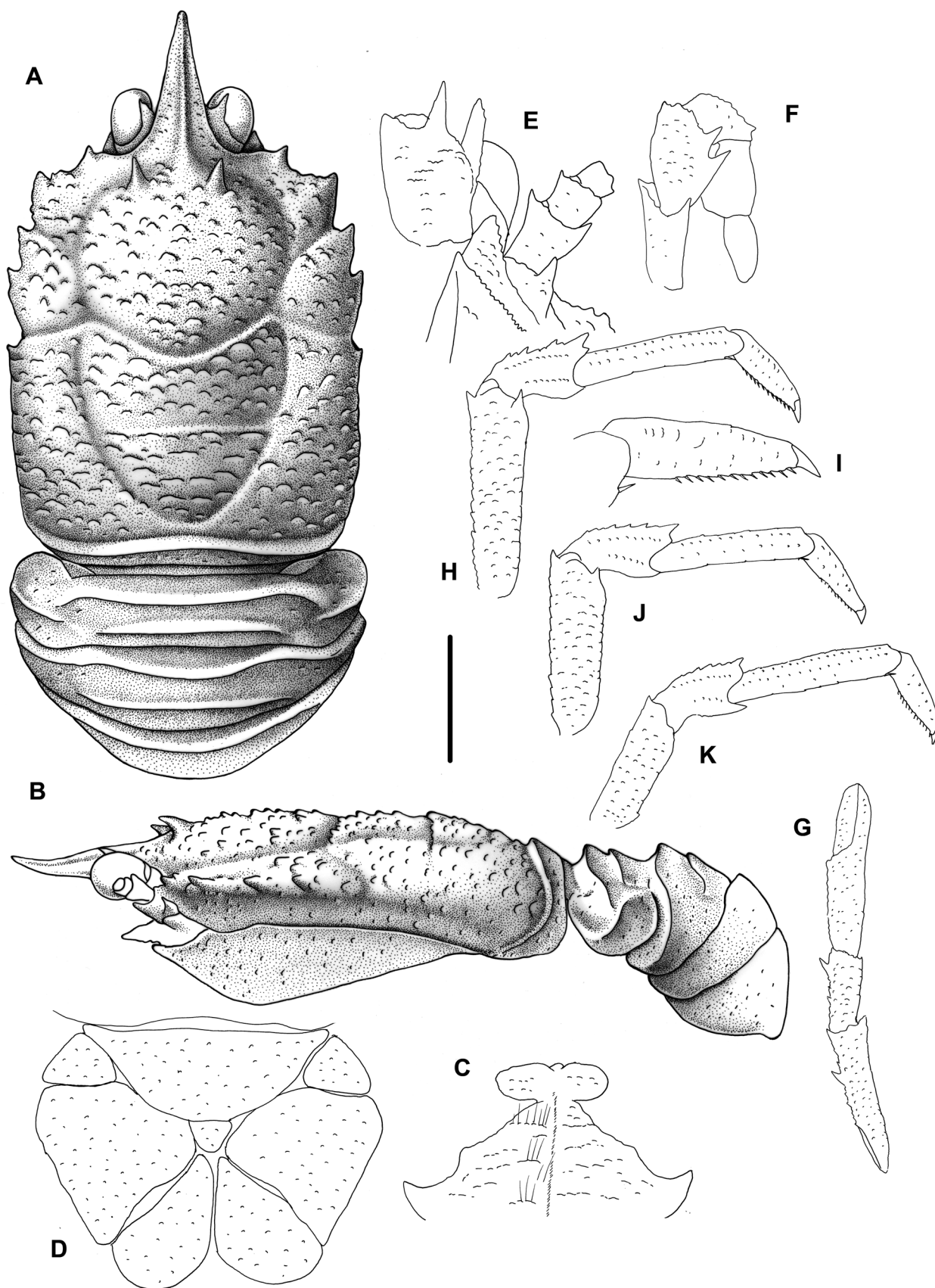


FIGURE 1. *Munidopsis mandelai* sp. nov. Holotype ♂ 7.2 mm (NHMUK 2013.1013): A, dorsal view of carapace and abdomen; B, lateral view of carapace and abdomen; C, sternal plastron, sternites 3 and 4; D, telson; E, ventral view of left eye, antennule and antenna; F, right maxilliped 3; G, right cheliped (P1); H, second pereopod (P2); I, dactylus of P2; J, third pereopod (P3); K, fourth pereopod (P4). Scale: A–B, H, J, K = 2 mm; C–F, I = 1 mm; G = 4 mm.

Antennule (Fig. 1E): Basal article with dorsolateral and distolateral spines; distomesial margin slightly produced and granulate.

Antenna (Fig. 1E): Peduncle reaching tip of eye; article 1 with distomesial and distodorsal spines; article 2 with 2 small distal spines on mesial and lateral margins; article 3 with granulated distal margin; article 4 unarmed.

Maxilliped 3 (Fig. 1F): Ischium as long as merus measured on extensor margin; flexor margin of merus with 2 strong spines and several granules; extensor margin serrate, with small distal spine; 21–23 corneous denticles on crista dentata.

Cheliped (Fig. 1G): P1 moderately long and slender, nearly devoid of setae, $2.0\text{--}2.3 \times$ longer than carapace, covered with small granules on merus to dactylus. Merus $2 \times$ carpus length, with 1–3 median and 1 distal well developed spines, small in a few specimens, and some minute spines or acute granules, along mesial margin, a few minute spines on dorsal side, 1 distoventral spine, sometimes obsolescent, and a row of acute granules along dorsal side. Carpus $2.3 \times$ longer than broad, with 1 mesial distal spine, and 1 small distolateral spine. Palm unarmed, slender, slightly longer than carpus, $2.3 \times$ longer than broad, and as long as fingers. Fingers unarmed, opposable margins nearly straight, not gaping, distally spooned; distolateral margin of fixed finger not serrated.

Pereiopods 2–4 (Figs. 1H–K): slender, coarsely granulate, nearly devoid of setae, somewhat compressed laterally, decreasing in size posteriorly; P2 longest, not reaching end of P1. Meri coarsely granulate, trianguloid in cross section, successively shorter posteriorly (P3 merus 0.9 length of P2 merus, P4 merus 0.8 length of P3 merus); P2 merus 0.6 carapace length, $3.6 \times$ as long as broad, $1.4 \times$ longer than P2 propodus; P3 merus $3.2 \times$ longer than broad, $1.4 \times$ longer than P3 propodus; P4 merus $2.7 \times$ as long as broad, 0.9 length of P4 propodus. Extensor margins of meri with row of acute granules or small spines; lateral surface covered with small granules; flexor margins distally ending in strong spine followed proximally by granules and several tubercles or eminences. Carpi with row of small spines along extensor margin, increasing in size distally; lateral surface with 2 rows of acute granules; flexor distal margin with small spine. Propodi trianguloid in cross section, $4.1\text{--}4.5 \times$ as long as broad; 2 rows of acute granules along extensor margin, one row along lateral side. Dactyli length 0.6–0.7 that of propodi; extensor margin slightly convex, flexor margin straight, with 10–12 slender corneous spinules.

Epipods on P1–P3.

Distribution. Southwest Indian Ocean Ridge, in the Atlantis and Middle of What seamounts, at 740–1135 m.

Remarks. The new species belongs to the group of species having the rostrum without lateral spines, two epigastric spines, the abdominal segments unarmed, one dorsal eye-spine, tubercle-like, and the P2 not reaching the end of the P1. The closest relative is *M. hemingi* Alcock & Anderson, 1899 from the Travancore coast, India. Although the original description and illustration of *M. hemingi* is not complete, the two species can be differentiated by the following aspects: in *M. mandelai* sp. nov. the epigastric spines are well developed (vs tubercles in *M. hemingi*), the lateral margins of the carapace are straight (versus more convex in *M. hemingi*), the eye has a tubercular process mediodorsally (versus a papilliform spinule at mesial angle) and the fourth pereiopods are without epipods (versus present in *M. hemingi*).

Munidopsis mandelai sp. nov. is also closely related to *M. tasmaniae* Ahyong & Poore, 2004 from Tasmania but is readily distinguished from this species in having the epigastric spines well developed (vs. blunt, flattened epigastric processes in *M. tasmaniae*), the rostrum narrow triangular (vs. subtriangular, broad basally in *M. tasmaniae*), and the flexor margin of Mxp 3 merus with 2 teeth (vs. 4 teeth in *M. tasmaniae*).

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