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**New Species of *Tethygeneia* (Eurisidae: Amphipoda) and New Record of Algae-Living Gammarid Amphipods in South Sea Islands Marine National Park, Nakhon Si Thammarat Province, Thailand**

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**Abstract** The amphipod *Tethygeneia khamomensis* sp. nov. were collected from South Sea Islands, lower Gulf of Thailand, in March 2008. A total of twelve species from seven families was recorded. The common and dominant species were *Paradusa bilobata* and *Podocerus andamanensis* occurred in all stations. The six species are new record for the Gulf of Thailand and South China Sea i.e. *Ampithoe ramondi*, *Ampithoe africana*, *Elasmopus puteus*, *Paradusa bilobata*, *Parahyale aqulina*, *Podocerus andamanensis* and *Anamixis* sp. A is undescribed. Their characters are described and illustrated. All specimens are deposited at Princess Maha Chakri Sirindhorn Natural History Museum, Prince of Songkla University, Thailand.

**Key words:** gammarid amphipods, algae-bed, South Sea Islands Marine National Park

### **Introduction**

Gammarid amphipods are the common benthos, widely distributed in many marine ecosystems including soft bottom and hard bottom habitats. They are variety in term of species and modes of life. The animals are abundant and play an important role in trophodynamics such as primary consumer in both grazing and detritus food chain. Moreover, amphipods are an important food for fish and larger crustaceans (Stoner, 1979). In Thailand, amphipods are commonly reported as a major group but there is little information about amphipods diversity.

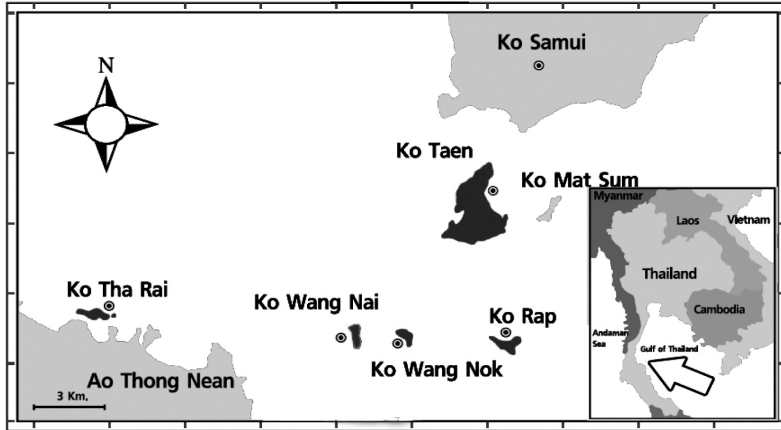
Algae beds commonly located adjacent to coral reefs and seagrass beds. Some algae species associated with dead coral and seagrass leave. Most of Amphipods occupying in algae beds are nestler species that make their nest from algae and debris, i.e. Ampithoidae, Aoridae, Isaeidae and Ischyroceridae (Barnard, 1971). Besides, the inquilline group, Leucothoe and Anamixidae that which associated with other invertebrates such as tunicates, sponges and sea anemone also reported (Appadoo and Steele, 1998).

Southern Islands marine national park are pristine area that contain variety ecosystems including rocky shore, sandy beach, mangrove forest, seagrass bed, coral reef and algae bed. These islands provide habitats for marine flora and fauna. This present study was undertaken with the objective to study the gammarid amphipod species richness in this area and the information will be useful for understanding the amphipods diversity and ecology with particular emphasis on algal substrates in Thailand.

### **Materials and Methods**

#### **Study sites**

Study sites composed of 5 islands located in Marine National Park, Amphoe Khanom, Nakorn Si Thammarat Province, lower Gulf of Thailand. (Figure 1).



**Fig. 1.** Study sites in Marine National Park, Nakorn Si Thammarat Province  
 ⊙ sampling site

**Table 1.** Amphipod distribution in southern Islands

Family	Species	Tarai	Wang Nai	Wang Nok	Rab	Tan
Ampithoidae	<i>Ampithoe ramondi</i> *	+	-	+	+	+
	<i>Ampithoe africana</i> *	+	+	+	+	+
Anamixidae	<i>Paradusa bilobata</i> *	+	+	+	+	+
	<i>Anamixis</i> sp. A*	-	-	+	+	-
Melitidae	<i>Maera quadrimana</i>	-	-	-	+	-
	<i>Elasmopus puteus</i> *	-	-	-	+	+
Photidae	<i>Gammaropsis abbotti</i>	-	+	+	+	+
	<i>Grandidierella megnae</i>	-	+	+	+	-
	<i>Photis longicaudata</i>	-	-	-	+	-
Podoceridae	<i>Podocerus andamanensis</i> *	+	+	+	+	+
Eurisidae	<i>Tethygeneia</i> sp.A*	+	-	-	+	+
Hyalidae	<i>Parahyale aquilina</i> *	-	-	-	+	-

### Specimens sampling

Amphipods were collected from 5 sites of 5 islands in March, 2008. All of the sites were located in the intertidal zone at 1-3 m depth. The sites were visited at low tide and samples were collected from intertidal to subtidal zone. Algae were collected by scarping them from their substrates using a small shovel. The substrates were transferred to plastic bags and preserved in 5 % formalin.

Amphipods were sorted from the substrates under stereo microscope in the laboratory. The protocol for amphipods identification was follow by Barnard and Karaman (1991). Drawings were made using an Olympus CH30 microscope equipped with a camera lucida. Amphipods picture of each species was drawn to illustrate the whole body and dissected to illustrate other diagnosis characters. Type material and additional representative material are deposited in the Princess Maha Chakri Sirindhorn Natural History Museum, Prince of Songkla University, Thailand.

### Result

A total of 14 species belonging to 9 families of amphipods were identified (Table 1). Eight

species are reported for the first time in Gulf of Thailand and South China Sea of which one species apparently undescribed. These amphipods mostly associated with algae and some species such as *Anamixis* that associated with tunicate and sponge. The largest number of species is in family Ampithoidae and Photidae (3 species).

### Taxonomy

Family Eurusidae

*Tethygeneia khanomensis* sp. nov.

Fig 2, 3, 4

### Material examined

Holotype, male, body length 3.4 mm. (From tip of rostrum to apex of telson), (PSUZC-CR 0212); Paratypes, 1 male and 3 female, Rab Island (PSUZC-CR 0213).

Type locality: Rab Island, Nakorn Si Thammarat Province; among macroalgae, sublittoral; hand collected; coll. A. Darakri 15 March, 2008.

2 specimens, hand collected at low tide from algae and coral rubble near the coral reef, Tarai Island (PSUZC-CR 0214), A. Darakrai 15 March 2008. 1 specimens, hand collected, Tan Island (PSUZC-CR 0215), A. Darakrai 15 March 2008. 8. 2 specimens, hand collected, Rab Island (PSUZC-CR 0216),

### Description

Body ordinary, compressed, smooth. Head normal, rostrum large with 25% of head length, lateral cephalic lobes ordinary, anteroventral margin of head not produce. Eyes large, reniform, subround, with clear ommatidia. Both antennae subequal, 1 slightly shorter than 2, peduncular articles of antenna 1 progressively shorter, article 1 shorter than head, article 3 not produce, article 1 of primary flagella short, flagella composed of 17 articles, accessory flagellum absent. Labrum entire, subrounded, broader than long, epistome unproduced. Mandible normal, incisor toothed, molar trituate, columnar, mandibular palp proximal to molar, article 2 longest, unlobed, article 3 with medial setae. Labium; inner lobes absent, mandibular lobe short and point. Maxilla 1: inner plate with 5 medial apical setae, palp long, article 1 short. Maxilla 2: inner plate not broader nor longer than outer, inner plate without facial row of setae. Maxilliped: inner plate not relatively long, outer plate shorter than palp, palp with 4 articles, article 4 not spinose along the inferior margin, coxae ordinary, coxa 1 not produce anteriorly, coxa 4 with posterior lobe, excavate.

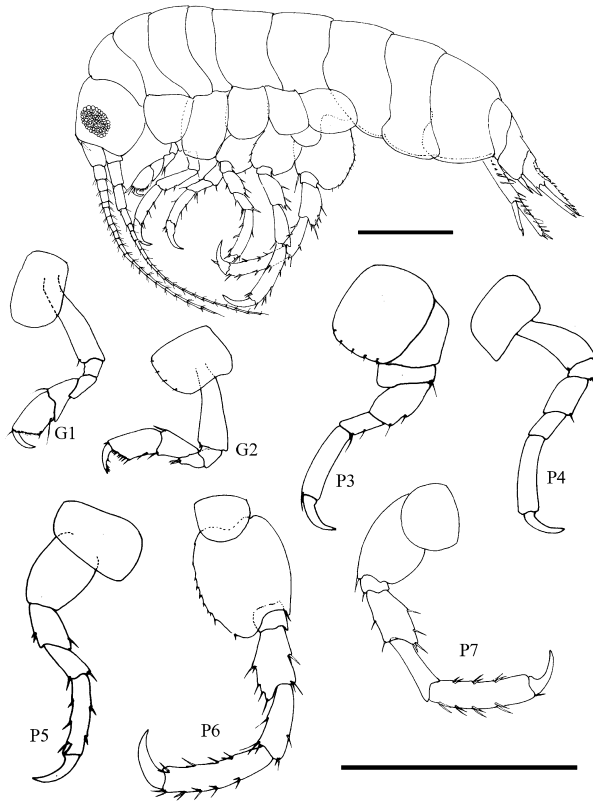
Gnathopods 1 and 2 alike, small, not eurusid, carpus of both much shorter than propodus, only gnathopod 2 with strong posterior lobe extending distad, carpus without numerous long setae, propodus rectangular, both propodus oblique with 2 large spine on posteriorventral corner. Pereopods 3-7 ordinary, simple, dactyl simple, article 2 narrow without anterior lobe. Epimeron 3 smooth. Outer rami of uropods 1-2 shortened; rami with lateral and dorsal spines. Uropod 3 ordinary, slightly extend beyond uropod 1 peduncle without large process, rami lanceolate. Telson ordinary, cleft, without long apical armaments.

### Distribution

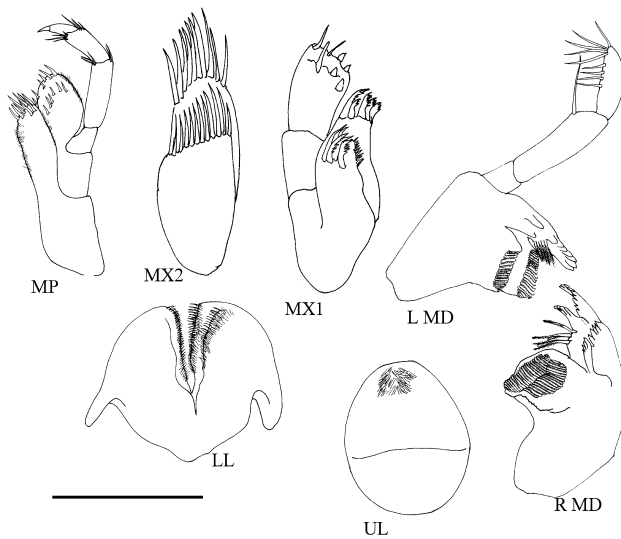
Amphipod this genus commonly distribute in warm and tropical waters. Most of them occur in southern part of the world.

### Remark

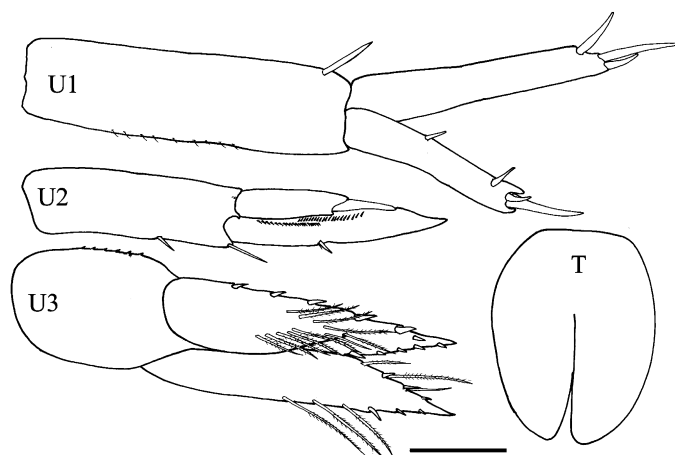
*Tethygeneia* sp. A similar to *T. tulkara* J, L Barnard, 1972 in Australia which bear a stout locking spines on pereopod 1-2, long rostrum but otherwise it differs by accessory flagellum absent. The



**Fig 2.** *Tethygenieia khamomensis* sp. nov. Holotype, male, body length 3.4 mm. (PSUZC-CR 0212) Rab Island, Scale for G1 to P7 represent 0.5 mm.



**Fig 3.** *Tethygenieia khamomensis* sp. nov. Holotype, male, Scale for mouthparts represented 0.25 mm



**Fig 4.** *Tethygeneia khanomensis* sp. nov. Holotype, male, (PSUZY-CR 0212)  
Rab Island, Scale for mouthparts represented 0.25 mm

animal were very fragile and most of appendages broken.

### Etymology

This species is named from Khanom Districted that the Type locality located.

The following species are the new record of the Gulf of Thailand and South China Sea. The description and characters were illustrated.

Family Ampithoidae  
*Ampithoe ramondi* Audouin  
Figure 5, 6

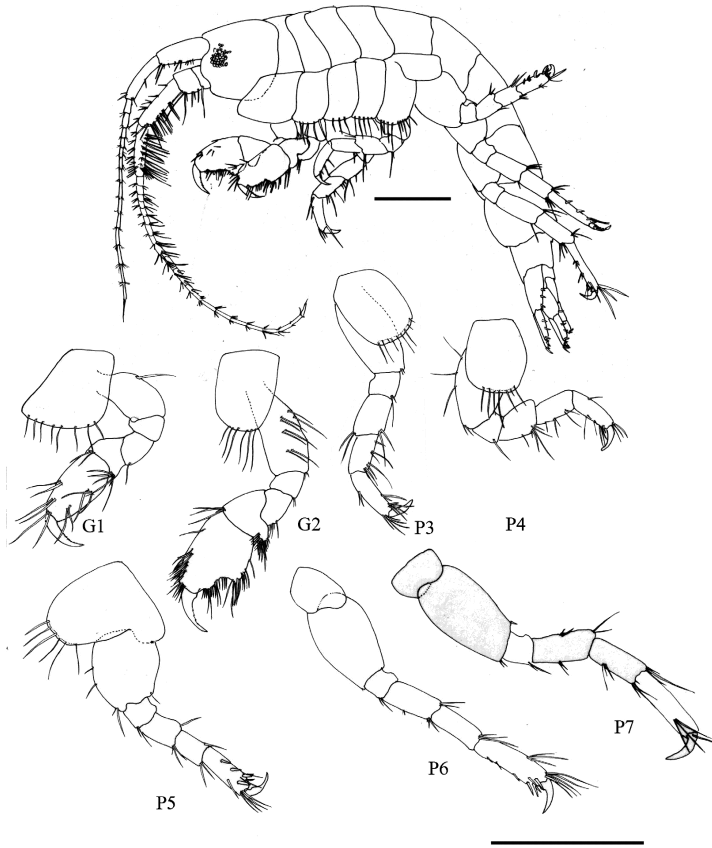
*Ampithoe ramondi* Audouin.-J. L. Barnard, 1965, pp. 28-29; J. L. Barnard, 1970 pp 50-51, fig 18, 19; 1971; Nagata, 1985; Hirayama, 1983; Sivaprakasam, 1970 and Rabindranath, 1972.

### Material examined

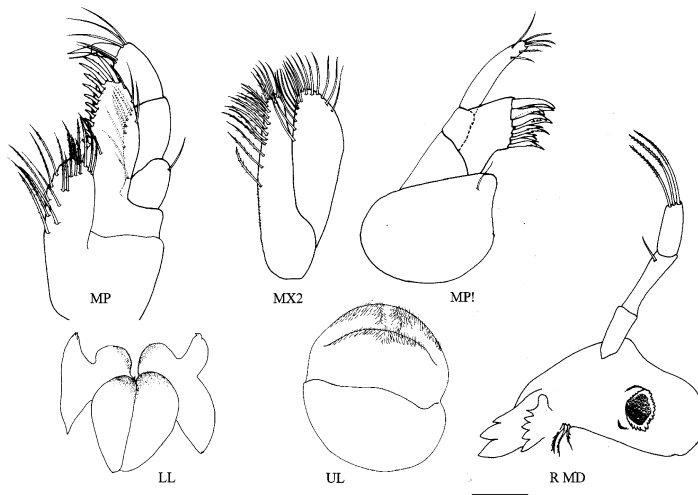
1 specimens, hand collected at low tide from algae and coral rubble near the coral reef, Tarai Island (PSUZY-CR 00201), A. Darakrai 15 March 2008. 8 specimens, hand collected, Wang Nok Island (PSUZY-CR 00202 ), A. Darakrai 15 March 2008. 8; 10 specimens, hand collected, Rab Island (PSUZY-CR 00203 ), A. Darakrai 15 March 2008.

### Description

Body lateral compress, smooth, normal, urosomites free., Head cuboidal, rostrum short, ocular lobe short, blunt, antennal sinus weak. Eye round, brown colour in alcohol. Both antennae subequal; antenna 1 shorter than 2, 50% of body length, accessory flagellum absent, peduncular article 3 of antenna 1 shorter than 1, article 2 and 3 progressive longer. Antenna 2 60% of body. Epistome unproduce anteriorly, Labrum subsounded, entire. Mandible normal, palp strong, article 3 rectilinear, article 3 shorter than 2. Labium with notched outer lobes and well develop inner lobes, mandibular lobe long and blunt. Maxilla 1 inner plate triangular with 2 apical setae, outer plate with 7 spines, palp 2 articulate. Outer plates of maxilla 2 broader than inner. Inner plate of maxilliped with distal spines



**Fig 5.** *Ampithoe ramondi* (PSUZC-CR 0201) 5.4 mm. Wang Nok Island. Scale for G1 to P7 represent 0.5 mm.



**Fig 6.** *Ampithoe ramondi* (PSUZC-CR 2001) Wang Nok Island. Scale for mouthparts represented 0.25 mm

on medial margin, palp with 4 articles, article 2 short, article 3 unlobed, article 4 short, with medium nail and setae.

Coxae relatively long, overlapping, coxa 1-4 subquadrate, coxa 1 produce forward, coxa 2 smaller than 1, coxa 4 longer than coxa 1, unlobed, coxa 4 as long as 4, coxa 4 not excavate, coxae 6-7 much smaller than anterior coxae.

Gnathopods 1-2 weakly diverse, gnathopod 2 slightly larger than 1, article 2 of both gnathopod 1 and 2 apically lobed, gnathopod 1 subchelate, article 5 triangle, shorter than 6, poorly lobed, propodus expanded, palm oblique, anterodistal without spine. Gnathopod 2 enlarged, subchelate, palm deeply excavate, defined by a large single spine, article 4 extend distally along posterior margin of article 5, article 5 shorter than 6, dactyl ordinary.

Sternal process of thorax absent. Coxal gills present on segment 2-6. Pleopod normal. Epimeron 3 smooth. Uropod 1-2 biramous, normal, rami slightly unequal, peduncle of uropod 1-2 without ventrodistal process. Uropod 3 stout and short, biramous, both rami very short, peduncle longer than rami, outer ramus recurved apically, with 2 distal hook-spines, inner ramus longer than outer ramus, broad, pad-like and apically setose. Telson entire, as broad as long, ovate with hooked apical cusps.

#### **Distribution:**

*A. ramondi* are widely distributed. It was first described in Egypt by Audouin in 1826, and subsequently from Japan Sea (Nagata, 1965 and Hirayama, 1983) and Indian Ocean (Sivaprakasam, 1970 and Rabindranath, 1972) to south Africa (Griffith, 1976). It was also recorded in Mediterranean Sea by Krapp-Schickel (1982) and Myer (1985).

#### **Remarks**

Our specimens are congruent to what Nagata (1965) reported from Japan Sea and what Barnard (1970) reported from Hawaii except the propodus of gnathopod 2 is more blunt than both. The excavate of gnathopod 2 is shallower than those of Indian and African.

*Ampithoe africana* K.H. Barnard, 1926

Fig. 7, 8

*Ampithoe africana* K.H. Barnard, 1926; Griffiths, 1976.

#### **Material examined**

10 specimens, hand collected, Rab Island (PSUZC-CR 0204), A. Darakrai 15 March 2008.

Body lateral compress, smooth, normal, urosomites free. Head cuboidal, rostrum short, ocular lobe short, blunt, antennal sinus weak. Eye, ovoid, dark brown in alcohol. Both antennae subequal, antennal longer than 2, peduncular article 3 of antenna 1 shorter than 1, article 3 shorter than 2, accessory flagellum absent. Epistome unproduce anteriorly, Labrum subsounded, point. Mandible normal, with large mandibular molar, palp strong, article 3 longer than 2 with distal setae. Labium with notched outer lobes, inner lobes moderately developed, mandibular lobe long and blunt. Maxilla 1 inner plate triangular, outer plate with two rows of spines, palp 2 articulate, article 2 longer than 1. Outer plates of maxilla 2 not very broad, inner plate with mediofacial row of setae. Inner plate of maxilliped with distal spines on medial margin, palp with 4 articles, article 2 short, article 3 unlobed, article 4 short, with medium nail and setae. Coxae relatively long, weakly overlapping, progressively elongate from 1-4, coxa 1 produced forward, coxa 2 smaller than 1, coxa 4 longer than coxa 1, unlobed, coxa 3 as long as 4, coxae 6-7 much smaller than anterior coxae.

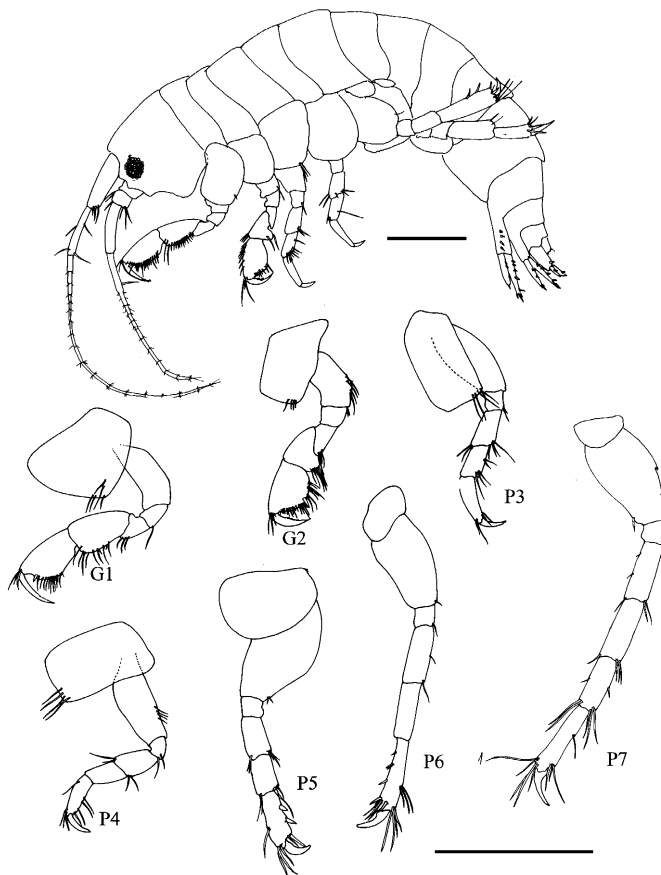


Gnathopods 1-3 weakly diverse, gnathopod 2 slightly larger than 1m gnathopod 1 subchelate, article 5 shorter than 6, poorly lobed, propodus expanded, palm oblique. Gnathopod 2 enlarged, subchelate, article 4 extend distally along posterior margin of article 5, article 5 shorter than 6, dactyl ordinary.

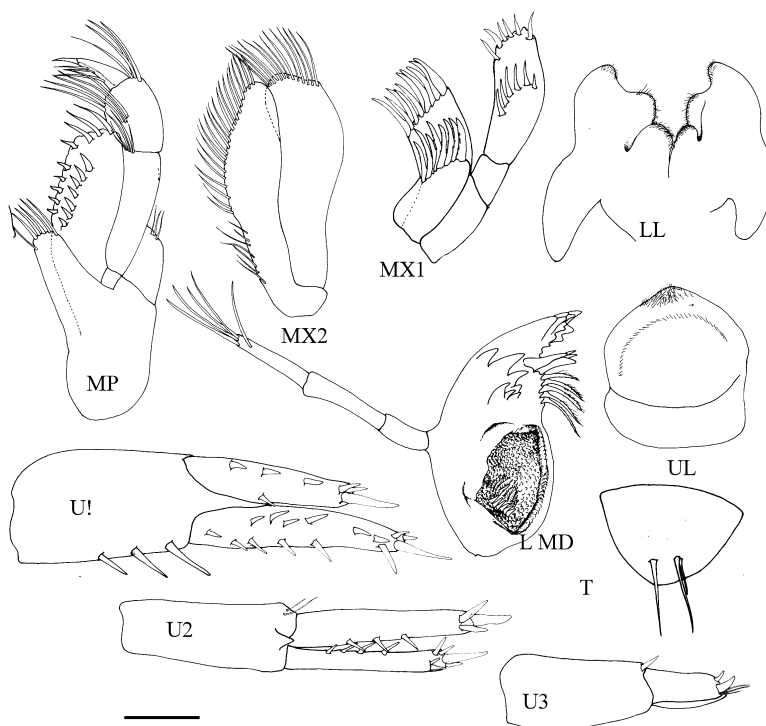
Sternal process of thorax absent. Coxal gills present on segment 2-6. Pleopod normal. Epimeron 3 not bisinuate. Uropod 1-2 biramous, normal, rami slightly unequal, peduncle of uropod 1-2 with weak and blunt ventrodistal process. Uropod 3 stout and short, biramous, both rami very short, peduncle longer than rami, outer ramus recurved apically, with 2 distal hook-spines, inner ramus longer than outer ramus, broad, pad-like and apically setose. Telson entire, broader than long, subglobular with 2 apical spine.

### Distribution

This amphipod was found in Africa and described by K. H. Barnard in 1926 and was report again in South Africa by Griffiths (1976).



**Fig 7.** *Amphithoe africana* (PSUZC-CR 0204) Rab Island, 0.67 mm. Scale for G1-P7 represented 0.5 mm.



**Fig 8.** *Ampithoe africana* (PSUZC-CR 0204) Rab Island. Scale for mouthparts represented 0.25 mm

### Remark

The animal of this area similar with *A. africana* in palm of male gnathopod 2 straight with a single spine at the posterior distal corner.

*Paradusa biolobata* Ruffo, 1969

Fig 9, 10

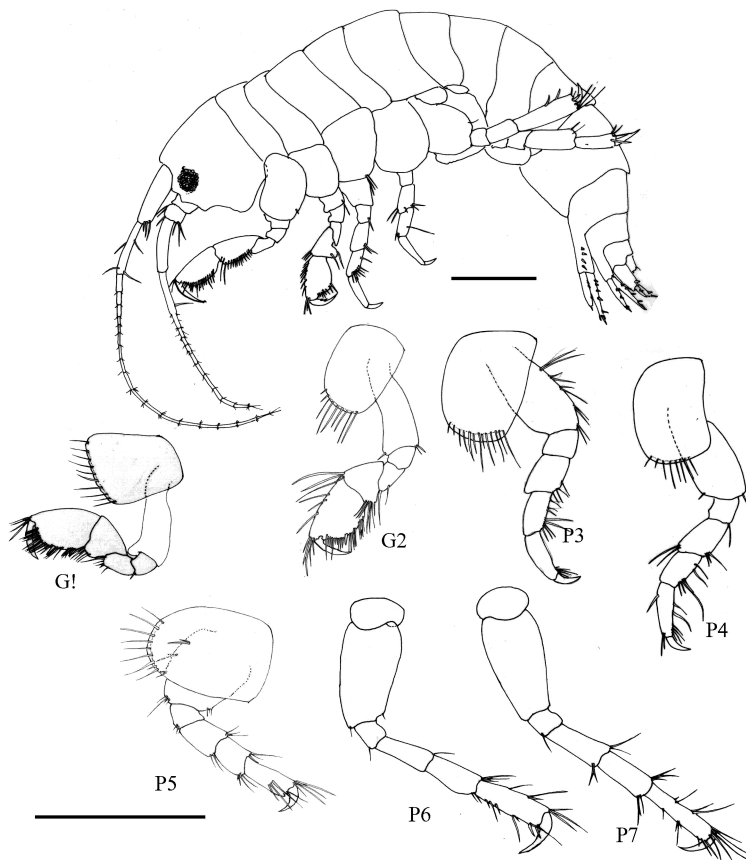
*Paradusa biolobata* Ruffo, 1969, pp 64-69, fig 21-23 ; Ledoyer, 1984, p 26, fig 11.

### Material examined

3 specimens, hand collected at low tide from algae and coral rubble near the coral reef, Tarai Island (PSUZC-CR 0205), A. Darakrai 15 March 2008. 4 specimens, hand collected, Tan Island (PSUZC-CR 0206), A. Darakrai 15 March 2008. 8; 4 specimens, hand collected, Wang Nok Island (PSUZC-CR 0207), A. Darakrai 15 March 2008. 10 specimens, hand collected, Rab Island (PSUZC-CR 0208), A. Darakrai 15 March 2008. 7 specimens, hand collected, Rab Island (PSUZC-CR 0209), A. Darakrai 15 March 2008.

### Description

Body lateral compress, smooth, normal, urosomites free. Rostrum short, ocular lobe short, blunt, antennal sinus weak. Eye ordinary. Antennae long, 1 longer than 2, both slender; peduncular article 3 of antenna 1 shorter than 1, article 2 and 3 progressive longer, accessory flagellum scale-like.

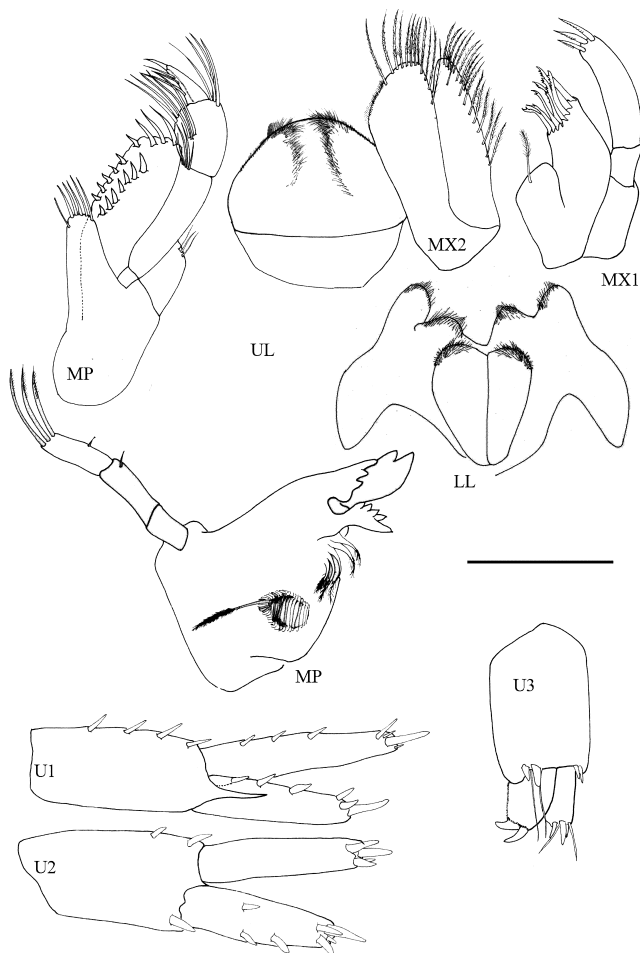


**Fig 9.** *Paradusa lobata* (PSUZC-CR 0207) Wang Nok Island. Scale for G1-P7 represented 0.5 mm.

Epistome unproduce anteriorly, Labrum subsounded, entire. Mandible normal, palp strong, article 3 rectilinear, article 3 longer than 2. Labium with notched outer lobes and well develop inner lobes, mandibular lobe long and blunt. Maxilla 1 inner plate linguiform with 1 medial setae, outer plate with 9 spines, palp 2 articulate. Outer plates of maxilla 2 slender and inner more narrow, inner plate with mediomarginal of setae. Inner plate of maxilliped with distal setae and cusp, outer plate normal, exceeding apex of palp article 2 with spine on medial margin, palp with 4 articles, article 2 short, article 3 unlobed, article 4 short, with long nail. Coxae relatively long, weakly overlapping, progressively elongate from 1-4, coax 1 barely dilated, produced forward, coax 2 larger than 1, coax 4 longer than coax 1, unlobed, coxa 4 as long as 4, coxae 6-7 much smaller than anterior coxae.

Gnathopods 1-3 alike, of equal size, large, gnathopod 2 slightly scarcely longer than , both subchelate, palm oblique, article 5 of both gnathopods very short, shorter than 6, lobed, article 6 large, dactyl ordinary.

Sternal process of thorax absent. Coxal gills present on segment 2-6. Pleopod normal. Epimeron 3 not bisinuate. Uropod 1-2 biramous, normal, rami slightly unequal, peduncle of uropod 1-2 with long and sharp ventrodistal process. Uropod 3 stout and short, biramous, both rami very short,



**Fig 10.** *Paradusa lobata* (PSUZC-CR 0207) Wang Nok Island. Scale for mouthparts and U1-3 represented 0.25 mm

peduncle longer than rami, outer ramus recurved apically, with 2 distal hook-spines, inner ramus longer than outer ramus, broad, pad-like and apically setose. Telson entire, as broad as long, ovate with hooked apical cusps.

### Distribution

The animal was first reported in Red Sea (Ruffo, 1969) and New Caledonia (Ledoyer, 1984)

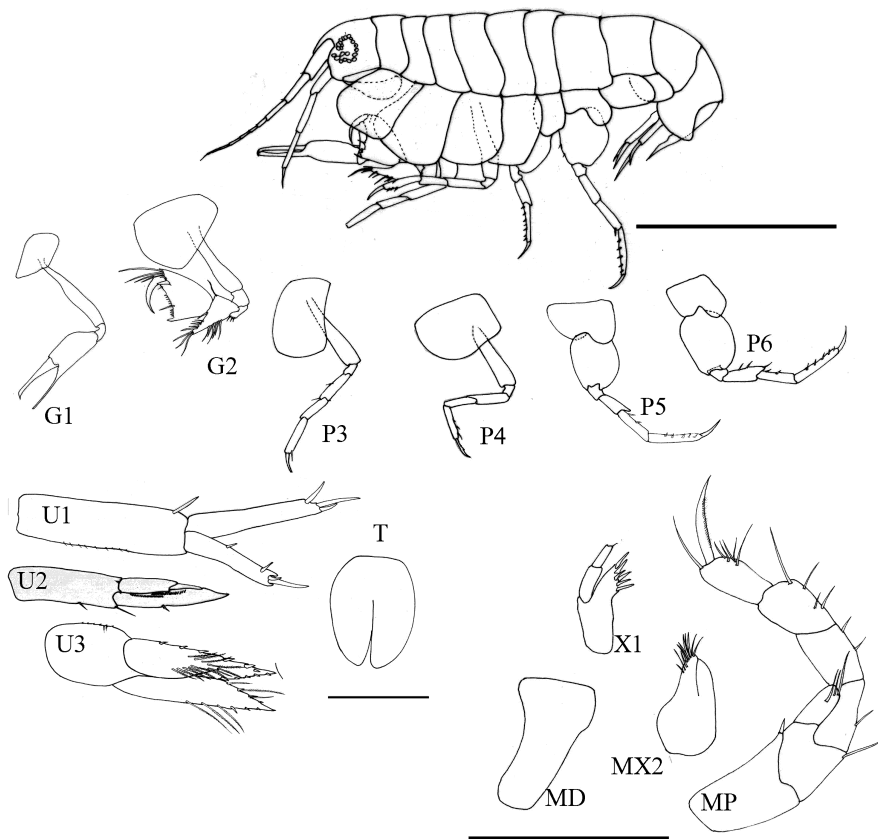
Family Anamixidae

*Anamixis* sp. A

Fig 11

### Material examined

1 specimens, hand collected, Rab Island (PSUZC-CR 0210 ), 1 specimens, hand collected, Wang Nok Island (PSUZC-CR 0211 )



**Fig 11.** *Anamixis* sp. A (PSUZC-CR 0210 ) from Rab Island, Scale for G1-P6 represented 0.5 mm. Scale for U1-U3 and T represented 0.025 mm and scale for mouthparts represented 0.025 mm.

### Description

Body lateral compress, smooth. Rostrum small, lateral cephalic lobe weak, eyes ommatidial. Antenna 1 slender, peduncle long, article 2 as long as 1, main flagellum sparsely articulate, without accessory flagellum. Antenna 2 slender and feeble. Mouthparts well developed. Epistome strongly produced anteriorly, front of head with midvertical keel, labrum asymmetrical incised. Mouthparts except maxilliped extremely reduced and vestigial, dominated by midventral keel. Mandible lacking molar, raker row long, incisors broad, tooth, wavy, palp slender, feeble, 3 article. Maxilla 1 present with broad inner plate, medial setae sparse but thick and short, spine-like, outer plate much more slender and sparsely setose. Outer plate of maxillipeds moderately well developed, inner plate small and fuse together. Palp long, thin, 4 articulate.

Coxa 1 hidden by shield-like coxae 2-4, coxa 2 largest, 4 longer than 3, coxa 5-7 slightly smaller. Gnathopod 1 small, carpochele. Gnathopod 2 very large and carpochele, propodus large, oval, dactyl long, overlapping propodus and carpal process.

Sternal gills absent. Sternal blisters absent. Sternal processes absent. Pereopod 3-4 slender. Pereopods 5-7 alike, short, base expanded, 7 weakly lobate. Pleopods biramus, multiarticulate. Gills

simple, ovate, small. Uropods 1-3 slender, uropod 3 breaking away. Rami lanceolate, outer rami short, weakly spinose. Uropod 3 peduncle elongate, telson short and entire.

### **Distribution**

Amphipod this genus occur in warm and tropical water, cosmopolitan.

### **Remark**

Amphipod this family are remarkable associated with sponge and tunicate and might be included to this study by chance and contained only female that hard to identify.

#### Family Melitidae

*Elasmopus puteus* Appadoo & Myers, 2003

Fig. 12, 13

Appadoo & Myer, 2003 p 71, fig 7, 8.

### **Material examined**

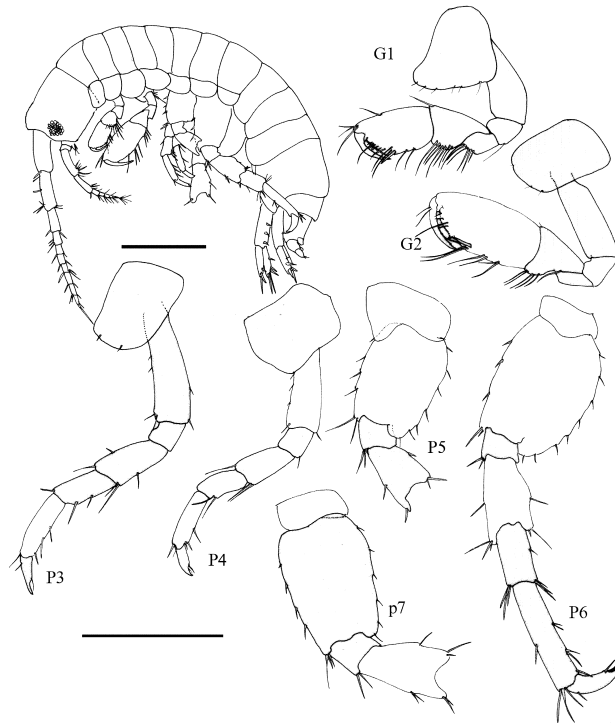
3 specimens, hand collected, Tan Island (PSUZC-CR 0217), A. Darakrai 15 March 2008. 8; 2 specimens, hand collected, Rab Island (PSUZC-CR 0218 ), A. Darakrai 15 March 2008.

### **Description**

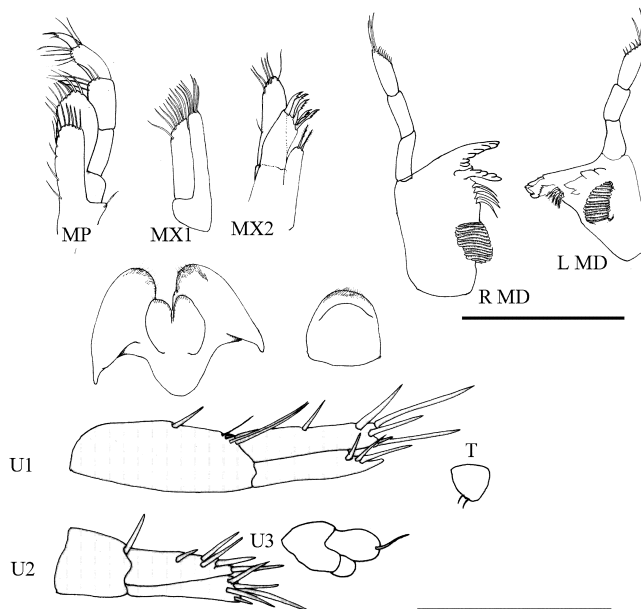
Body ordinary, compressed, smooth. Head normal, with subocular notch; eyes, small subround, with clear ommatidia. Antenna 1 longer than antenna 2, peduncle articles sparsely setiferous; peduncle article 2 slightly shorter than article 1; article 3, shorter than article 1; accessory flagellum 1 articles; primary flagellum 7 articles. Antenna 2, peduncle poorly setiferous; article 5 subequal to article 4; flagellum 5 articles, the terminal article progressively small. Mandible normal, mandibular palp article 2 longest, article 3 falcate, subequal with article 2, with comb row of setae and 2 long terminal setae. Maxilla 1, inner plate with 2 terminal plumose setae. Labium, mandibular lobes blunted; outer plate with a blunt stout seta on inner margin. Maxilliped, palp article 3 with a small distal protuberance. Gnathopod 1, coxa produced distally, as long as broad, with very short setae on distal margin; carpus and propodus subequal and each with long setae on the inner face of the anterior margin; propodus with palm oblique with a stout defining robust setae, dactyl with small serrate. Gnathopod 2, coxa broader, distal margin with very short setae, carpus cup-shaped, twice as broad as long; propodus slender, subpyriform, twice as long as broad, palm oblique, posterior margin poorly setiferous, with a small subtriangular process on the inner subdistal face and a medial excavation forming a pit into which fits the tip of the dactylus; dactylus evenly curved, about half length of propodus. Pereopods 3-4 alike, propodus subequal to carpus; dactylus curved. Pereopod 5, basis subquadrate tapering distally, posterior margin weakly crenulate with short setae. Pereopod 6, basis subquadrate, posterior margin weakly convex, crenulate and with short setae. Pereopod 7, basis strongly expanded, posterior margin very convex, crenulate with small setae. Epimeron 1 rounded. Epimera 2-3, produced into a weak posterodistal tooth and with a row of robust setae on the anterodistal margin. Uropod 1, rami subequal to each other and to peduncle. Uropod 2, peduncle inner ramus shorter than inner ramus outer ramus. Uropod 3, peduncle subequal to inner ramus; inner ramus slightly shorter than outer ramus; inner ramus with lateral and terminal robust setae; outer ramus with lateral robust setae and a group of terminal robust setae and 1 long slender seta. Telson, deeply cleft; apices notched.

### **Distribution**

The amphipod was firstly reported at Mauritius Island, Pacific Ocean among algae bed.



**Fig 12.** *Elasmopus puteus* (PSUZC-CR 0211) Tan Island. Scale for G1-P7 represented 0.5 mm.



**Fig 13.** *Elasmopus puteus* (PSUZC-CR 0211) Tan Island. Scale for G1-P7 and U1-U3 and T represented 0.25 mm.

**Remark**

Amphipods this species is different from those found in Mauritius Island from antenna 1 flagellum composed of 7 article which those has 11 articles and antenna 2 composed only 6 articles.

## Family Hyalidae

*Parahyale aquilina* K. H. Barnard, 1935

Fig. 14, 15

*Allorchestes aquilinus* Chevreux & Fage, 1925:289, fig 300-301.

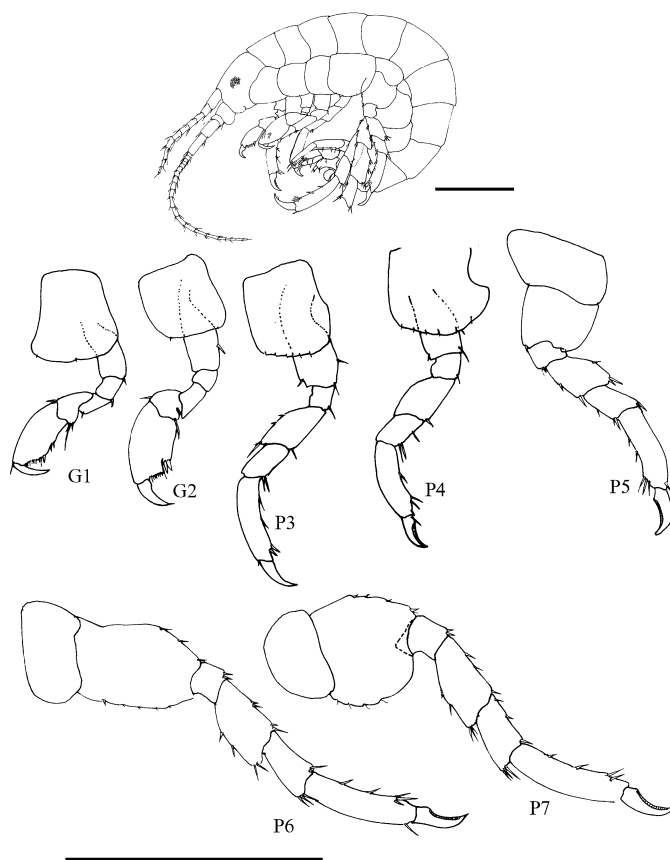
*Parhyale aquilina* Krapp-Schickel, 1993:754, fig. 516.

**Material examined**

2 speciemens, hand collected, Rab Island (PSUZC-CR 0219 ),

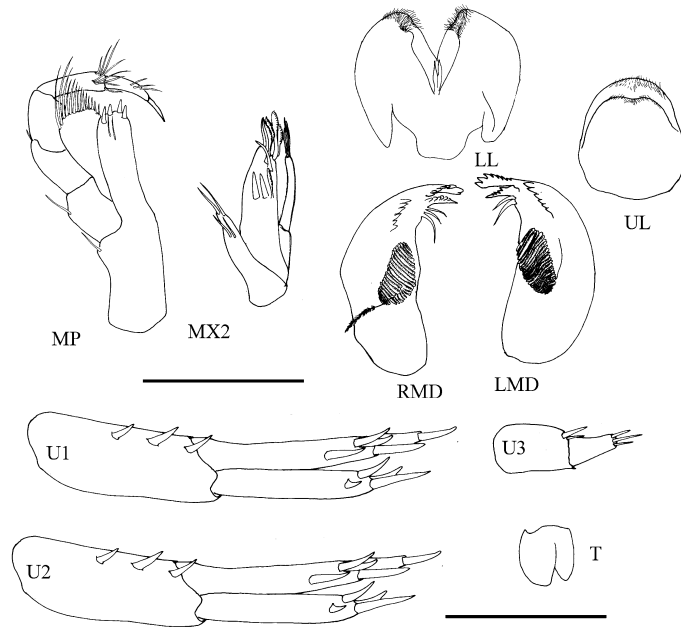
**Description**

Body smooth, compressed. Head normal. Antenna 1 shorter than antenna 2 Peraeon. Body without dorsal carina. Maxilla 1 bearing large 1 articulate palp with terminal spines. Dactyl of



**Fig 14.** *Parahyale aquilina* (PSUZC-CR 0219 ), Rab Island. Scale for G1-P7 represented 0.5 mm.





**Fig 15.** *Parahyale aquilina* (PSUZC-CR 0219 ), Rab Island. Scale for mouthparts and U1 to U3 and telson represented 0.5 mm.

maxilliped unguiform, with short setae. Coxa 1 and 2 as broad as long, slightly produce forward, coxa 1-4 subequal, coxa 4 excavate posterior. Gnathopod 1 and 2 distinctly different in size. Gnathopod 1 propodus similar length to carpus, palm oblique with a large spine posteriodistal corner. Gnathopod 2, carpus without setae on the posterior margin; 2 propodus enlarged, palm oblique, propodus with robust sedefining palm, with fine setae on distal oblique margin, propodus with robust seate on distal oblique margin. Pereopods 3 to 7 without large robust striated setae on propodus. Pereopods 6 to 7 without tuft of setae at mid length on posterior margin of propodus. Pereopod 7 basis with large flange (about as broad as long). Uropods 1-2 biramus, uropod 3 uniramus, inner ramus vestigial. Telson cleft, flate.

### Distribution

The amphipods was firstly described in France by Chevreux and Fage (1925). Krapp-Schickel reported amphipods this species in Indo-Pacific Region.

### Remark

Amphipod found in this study different from amphipod of Chevreux and Fage (1925) on maxilliped palp article 3 that naked while those of France densely setose.

### Podoceridae

*Podocerus andamanensis* (Giles, 1890)

Fig 16, 17

*Cyrtophium andamanense* Giles, 1890, p 72-73, fig. 7.

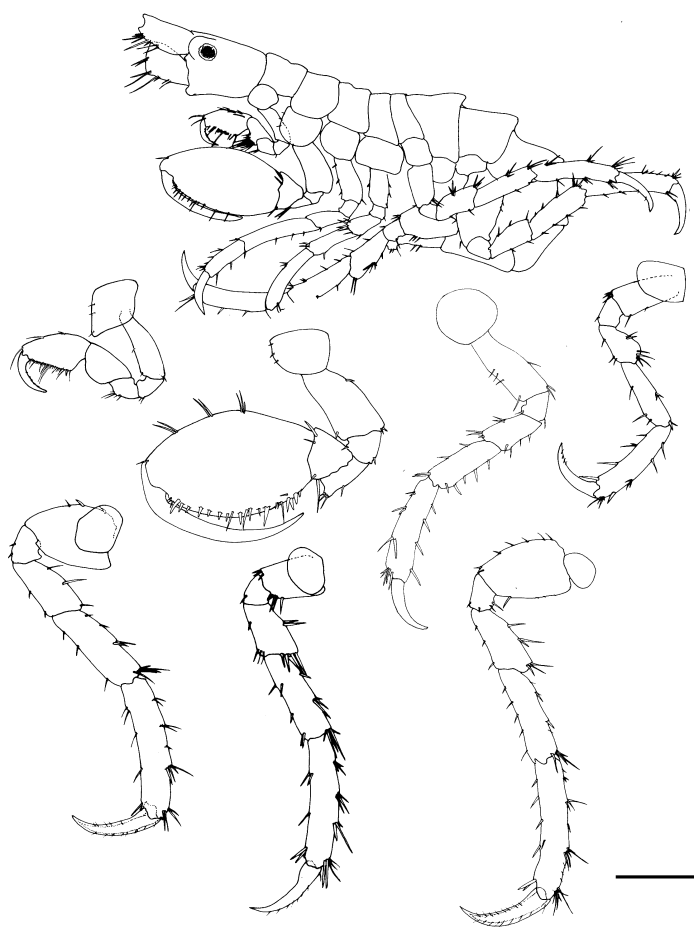
*Podocerus andamanensis* Stebbing, 1906. p 702.

### Material examined

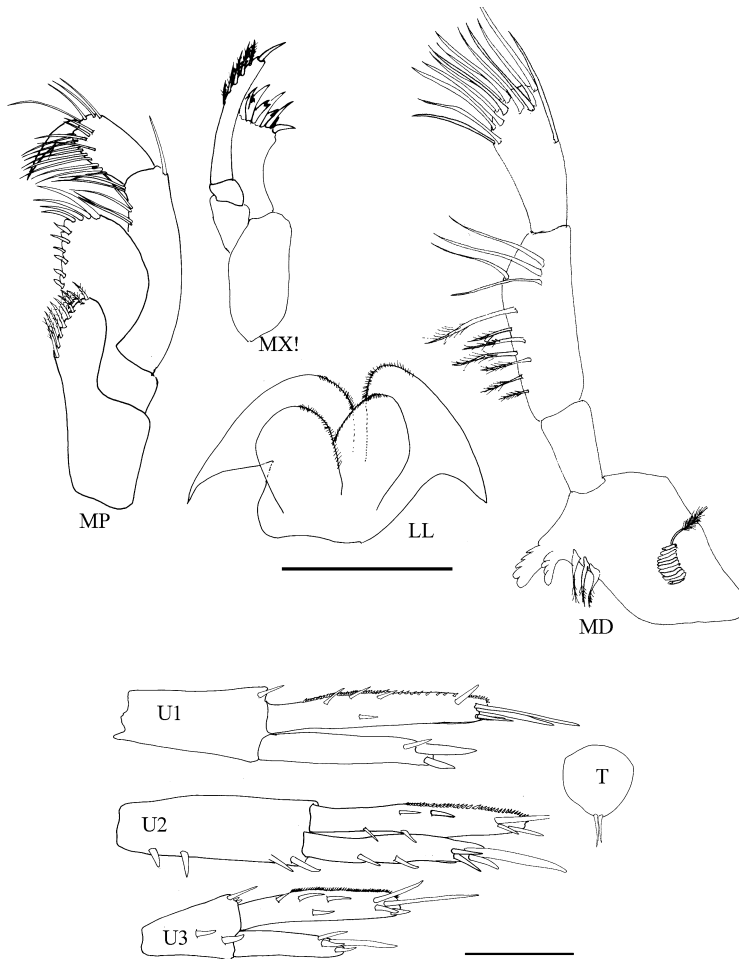
3 specimens, hand collected at low tide from algae and coral rubble near the coral reef, Tarai Island (PSUZC-CR 0220), A. Darakrai 15 March 2008. 2 specimens, hand collected, Tan Island (PSUZC-CR 0221), A. Darakrai 15 March 2008. 8; 9 specimens, hand collected, Rab Island (PSUZC-CR 0222), A. Darakrai 15 March 2008.

### Description

Body not carinate but provide with elevation hump, subcylindrical, Urosomite 1 elongate. Rostrum short, ocular lobe short, blunt, antennal sinus deep. Eyes large, bulging laterally. Epistome produce anteriorly. Labrum incised, bilobe. Mandible normal, palp strong, article 3 clavate, shorter than 2. Labium with entire outer lobes, with well-developed inner lobes, mandibular lobes long, point or blunt. Inner plate of maxilla 1 short with 1 seta, outer plate with 9 spines, palp 2-articulate. Outer plates of maxilla 2 broad, inner plate with only sparse mediomarginal setae. Inner plate of maxilliped with distal spine, outer plate normal, reaching halfway to apex of palp article 2, with spine on medial margin, palp with 4 articles, article 2 long, article 3 unlobed, article 4 short, with long nail and setae.



**Fig 16.** *Podocerus andamanensis* (PSUZC-CR 0220) Rab Island. Scale for G1-P7 represented 0.5 mm.



**Fig 17.** *Podocerus andamanensis* (PSUZC-CR 0220) Rab Island. Scale for mouthpart and U1-3 and telson represented 0.5 mm.

Coxae very small, short, weakly discontiguous, of various sizes and shapes, not progressively elongate from 1 to 4, coxa 1 dilated, not produced forward, coxa 2 longer than 1, not produced, coxa 4 not longer than coxa 1, not lobed, coxa 5 shorter than 4, coxae 6-7 smaller than anterior coxae. Gnathopods 1-2 diverse, gnathopod 2 greatly larger than 1, gnathopod 1 poorly subchelate, article 5 as long as 6, weakly lobed. Gnathopod 2 enlarged, incipiently merochelate, extended and fused distally along posterior margin of article 5, article 5 much shorter than 6, triangular, fused to 4, article 6 dilated, dactylus long.

Pereopods 3-4 longer than gnathopods, similar, with slender article 2, article 4 dilated, dactylus medium. Pereopods 5-7 similar to each other, pereopod 7 longest, pereopods 5-7 with broad unlobed article 2, dactylus long, curved. Sternal precess of thorax absent. Coxal gill present on segment 2-6. Pleopods normal. Epimeron 3 bisinuate. Uropods 1-2 biramous, remi unequal, inner plate longer than outer. Uropod 3 forming small leaf lacking rami. Telson entire, short, broader than long, semicircular.

### Distribution

The animal was firstly describe by Giles (1890) in Africa and reported again in south Africa by Stebbing in 1906.

### Remark

Amphipod found in this study is similar with those of Giles (1890) but it has small hump on posterior pereon segment while those of Giles smooth.

### Discussion

The dominant group in this study are amphithoid that commonly herbivorous and prefer vegetative ecosystem such as seagrass bed and algae bed. (Barnard, 1970 and Myer, 1985). There are rare species such as *Maera quadrimana* that occurred only in Rab Island and *Anamixis* sp. A that found only at Wang Nok and Rab Island. The first one was reported in coral reef and sandy beach while the latter are associate with sponge and tunicate (Barnard and Karaman, 1991). The amphipod found in this study consist of 12 species which 8 species are new record of this area and one species of that should be new to science according to the list of amphipod in South China Sea (Lowry, 2000). It implies that the deep studies of amphipod diversity are need including species richness, amphipods community seasonal variation and also their ecology. Furthermore, the study of amphipod in adjacent habitat such as coral reef, seagrass bed and rocky shore should be investigated to understand amphipod distribution and migration.

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