Preliminary Notes on a Collection of Amphipoda from Pulau Redang, Malaysia

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ABSTRACT

Preliminary note is given of the presence of 20 gammaridean and 1 caprellidean amphipod species in shallow waters in the vicinity of Pulau Redang. Some of these entities can only be tentatively identified at present, but definitive records are established for *Byblis pilosa* (Imbach), *Cymadusa vadosa* (Imbach), *Ericthonius brasiliensis* (Dana), and *Urothoe gelasina* (Imbach). Much work needs to be done in the South China Sea before amphipod biodiversity can be properly assessed and understood.

**Keywords:** Amphipods; *Byblis pilosa*; *Cymadusa vadosa*; *Ericthonius brasiliensis*; *Urothoe gelasina*

Introduction

Studies on the gammaridean amphipod fauna of Malaysian waters are scarce. Except for the works of Othman & Morino (1996) who reported *Indischnopus redangi* from Pulau Redang and Müller (1993) who described *Rostrogitanopsis karamani* from the coral reef of Pulau Babi Besar, South China Sea, to date, there is no other work on marine amphipods from here. However, an extensive study of marine gammaridean amphipod
was conducted in an area nearby, at the Bay of Nhatrang, South China Sea by Imbach (1967). She analyzed samples collected during the NAGA Expedition and recorded a total of 35 species of which 21 were new.

The present study was undertaken to determine the amphipod fauna found in the intertidal/shallow subtidal zones of the island with particular emphasis on their associates substrates. This paper is a preliminary report on the species of gammaridean amphipods so far collected from Pulau Redang.

**Materials and Methods**

A total of 9 samples of different substrates namely macroalgae, coral rubbles, muddy sand and holothuroids were collected from 2 sites of Pulau Redang during 27 July to 1 August, 2003 (Figure 1).

Substrates were washed in large buckets of seawater added with small amounts of formalin (4%) to stun the amphipods. The samples were shaken, and the material settling out was sieved through fine mesh screens of 300 mm and preserved in a seawater solution of 10% formalin. The procedure was repeated 4 or 5 times to ensure that all amphipods were collected. The detail of the sample types and method of sampling are given in Table 1.

**Results**

A total of 1,289 specimens were examined belonging to 15 families and 21 species (Table 2). None of them have been recorded previously from Pulau Redang. In his checklist
### TABLE 1: Sampling Sites Detail

<table>
<thead>
<tr>
<th>Sample ref. no.</th>
<th>Site ref. on Fig. 1</th>
<th>Site Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>7361</td>
<td>1</td>
<td>Tg. Ara, Muddy sand area, St.1.1, Ponar Grab, 1.8.2003</td>
</tr>
<tr>
<td>7362</td>
<td>1</td>
<td>Tg. Ara, Muddy sand area, St.1.2, Ponar Grab, 1.8.2003</td>
</tr>
<tr>
<td>7363</td>
<td>1</td>
<td>Tg. Ara, Muddy sand area, St.1.3, Ponar Grab, 1.8.2003</td>
</tr>
<tr>
<td>7364</td>
<td>2</td>
<td>Tg. Ara, Muddy sand area, St.2.1, Ponar Grab, 1.8.2003</td>
</tr>
<tr>
<td>7365</td>
<td>2</td>
<td>Tg. Ara, Muddy sand area, St.2.2, Ponar Grab, 1.8.2003</td>
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<tr>
<td>7366</td>
<td>2</td>
<td>Tg. Ara, Muddy sand area, St.2.3, Ponar Grab, 1.8.2003</td>
</tr>
<tr>
<td>7367</td>
<td>3</td>
<td>P.Pinang, sublittoral algal, washing, 31.7.2003</td>
</tr>
<tr>
<td>7369</td>
<td>3</td>
<td>P.Pinang, sublittoral holothuroid, washing, 31.7.2003</td>
</tr>
<tr>
<td>7372</td>
<td>3</td>
<td>P.Pinang, sublittoral coral rubble, washing, 31.7.2003</td>
</tr>
</tbody>
</table>

### TABLE 2: Twenty Species of Gammaridean and One Species of Caprellidean Amphipod Collected from Redang Island in the Present Study

<table>
<thead>
<tr>
<th>Family</th>
<th>Species Name</th>
<th>Reference</th>
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<tbody>
<tr>
<td>Ampeliscidae 1)</td>
<td>Byblis pilosa Imbach</td>
<td>4</td>
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<tr>
<td>Ampithoidae 2)</td>
<td>Cymadusa vadosa Imbach</td>
<td>202</td>
</tr>
<tr>
<td></td>
<td>Ampithoe sp. A</td>
<td>2</td>
</tr>
<tr>
<td>Aoridae 4)</td>
<td>Grandidierella sp. A</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>Lembos sp. A</td>
<td>34</td>
</tr>
<tr>
<td>Isaeidae 6)</td>
<td>Gammaropsis sp. A</td>
<td>51</td>
</tr>
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<td></td>
<td>Phoits sp. A</td>
<td>47</td>
</tr>
<tr>
<td>Ischyroceridae 8)</td>
<td>Ericthonius brasiliensis Dana</td>
<td>84</td>
</tr>
<tr>
<td>Dexaminiidae 9)</td>
<td>Paradexamine sp. A</td>
<td>111</td>
</tr>
<tr>
<td>Melitidae 10)</td>
<td>Elymus sp. A</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Eriopsa sp. A</td>
<td>1</td>
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<tr>
<td></td>
<td>Maera sp. A</td>
<td>30</td>
</tr>
<tr>
<td>Amphilochidae 13)</td>
<td>Gitanopsis sp. A</td>
<td>16</td>
</tr>
<tr>
<td>Leucothoidae 14)</td>
<td>Leucothoe sp. A</td>
<td>4</td>
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<tr>
<td>Hyalidae 15)</td>
<td>Hyale sp. A</td>
<td>39</td>
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<tr>
<td>Liljeborigiidae 16)</td>
<td>Listeriella sp. A</td>
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</tr>
<tr>
<td>Urothoidae 17)</td>
<td>Urothoe gelasina Imbach</td>
<td>78</td>
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<td>Phoxocephalidae 18)</td>
<td>Mandibulophoxus sp. A</td>
<td>10</td>
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<td>Podoceridae 19)</td>
<td>Podocerus sp. A</td>
<td>393</td>
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<tr>
<td>Stenothoidae 20)</td>
<td>Stenothe sp. A</td>
<td>70</td>
</tr>
<tr>
<td>Caprellidae 21)</td>
<td>Caprella sp. A</td>
<td>4</td>
</tr>
</tbody>
</table>

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of South China Sea amphipods, Lowry (2000) reported 4 species from the present list that has been previously recorded from the South China Sea in the Vietnam area. Of these, 4 genera that are present in Pulau Redang have not been reported in Lowry’s checklist. These are *Lembos*, *Listriella*, *Mandibulophoxus* and *Stenohoe* which are apparently new record to the South China Sea area. The present collection represents the faunal assemblage taken from shallow-water species represent mostly those associated with algae. Other substrates for example, coral rubbles and holothuroids were less extensively sampled.

The largest number of specimens collected in this study was from the family Podoceridae (393 specimens). The next two most speciose families were the Ampithoidae (204 specimens) and the Melitidae (91 specimens). Although there may be sampling bias, the greatest abundance (in terms of number of individuals) was observed in some species of the genera *Podocerus, Cymadusa, Paradexamine, Ericthonius, Urothoe* and *Stenothoe*.

Some notes for each of the species collected in the present study are given below.

**Family Ampeliscidae**

*Byblis pilosa* Imbach, 1967

*B. pilosa* Imbach. Imbach, 1967 p. 70-73 (for full synonymy)

*Samples*. 7361 (1), 7362 (1), 7363 (2).

*Remarks*. Taken from grab samples of sandy mud sediments, this species shows same entity referred to as *Byblis pilosa* (Imbach) from South China Sea.

**Family Ampithoidae**

*Ampithoe* sp. A

*Samples*. 7367 (2).

*Remarks*. From washing macroalgae. Moore (1990) reported *A. zachsi* (Gurjanova) from Hong Kong and this species differ from the latter species by having subquadrate article 6 of gnathopod 2.

*Cymadusa vadosa* Imbach, 1967

*C. vadosa* Imbach. Imbach, 1967 p. 89-90 (for full synonymy)

*Samples*. 7367 (178), 7372 (24).

*Remarks*. This species has been reported from the South China Sea area (Imbach, 1967) and associated with macroalgae and coral rubbles.

**Family Aoridae**

*Grandidierella* sp. A

*Samples*. 7361 (1), 7362 (1), 7363 (1), 7364 (10), 7369(35).

*Remarks*. Taken from grab samples of sandy mud sediments and also associated with *Holothuria atra*. Two species have been reported from the South China Sea area, Imbach (1967) reported *G. Gilesi* (Chilton) and Huang (1994) for *G. megnae* (Giles). The
characteristic feature that distinguished this species from the two is the projecting rostrum and by having equal length of merus and ischium of peraeopod 5.

*Lembos* sp. A

*Samples.* 7367 (16), 7372 (18).
*Remarks.* This is the first record of this genus from the waters of South China Sea. Associated with coral rubbles and among macroalgae.

**Family Isaeidae**

*Gammaropsis* sp. A

*Samples.* 7367 (3), 7372 (48).
*Remarks.* From washing macroalgae and coral rubbles. Differ from *G. togoensis* (Schellenberg), which is the only species reported by Ren (1994) from the South China Sea area by lacking vital character of article 2 of outer ramus of uropod 3.

*Photis* sp. A

*Samples.* 7367 (47).
*Remarks.* Only one unnamed photid species has been reported by Imbach (1967) from South China Sea. The present species differs by not having the minute uniarticulate accessory flagellum of antenna 1. Associated with macroalgae.

**Family Ischyroceridae**

*Ericthonius brasiliensis* Dana, 1852

*E. brasiliensis* Dana. Myers & McGrath, 1984 p. 382 (for full synonymy)

*Samples.* 7367 (84).
*Remarks.* The Redang specimens appear to be close to *E. brasiliensis* (Dana) recorded from Hong Kong by Moore (1990). From macroalgal washing of sublittoral area.

**Family Dexaminidae**

*Paradexamine* sp. A

*Samples.* 7367 (104), 7372 (7).
*Remarks.* This species is characterized by the lateral teeth of urosomite 1 that is lacking in *P. setigera* (Hirayama) which is the only species reported by Hirayama (1990) from the South China Sea. The specimens need careful cross referencing to types before it can be announced with confidence.

**Family Melitidae**

*Elasmopus* sp. A

*Samples.* 7367 (60).
*Remarks.* *E. molokai* Myers (1985) has been reported from Vietnam by Huang (1994) maybe the same entity but further cross reference is needed to confirm. Associated with macroalgae.
EKOSISTEM MARIN MALAYSIA: PELUANG & PENYELIDIKAN TERKINI

**Eriopisa** sp. AC

*Samples*. 7372 (1).

*Remarks*. This specimen has only one individual. In view of the present difficulty, I remain in doubt about the true identity of this specimen. It is presumed that this is from the genus *Eriopisa* by having a subequal article 1 and article 2 of outer ramus of uropod 3, in spite of the problem.

**Maera** sp. A

*Samples*. 7361 (7), 7365 (6), 7366 (2), 7367 (12), 7372 (3).

*Remarks*. There are two species of *Maera* reported in the waters of South China Sea; *M. pacifica* (Schellenberg) by Moore (1990) from Hong Kong and Ren (1994) described *M. othonides* from the waters of Vietnam. The present material resembles *M. pacifica* (Schellenberg) from Hong Kong (Moore, 1990). However further cross reference is needed to verify this species.

**Family Amphilochidae**

*Gitanopsis* sp. A

*Samples*. 7367 (3), 7372 (13).

*Remarks*. This species agrees with *G. longus* of Hirayama (1983). It has been reported from Hong Kong by Ren (1994) however further cross reference is needed to verify. Associated with coral rubbles and among macroalgae.

**Family Leucothoidae**

*Leucothoe* sp. A

*Samples*. 7364 (2), 7366 (1), 7367 (1).

*Remarks*. Taken from grab samples of muddy sand area. There are six known species from South China Sea area; *L. alata* (Huang, 1994) from Hong Kong; *L. alcyone*, *L. furina* (Imbach, 1967) from Vietnam; *L. germanalcyone* (Hirayama, 1992) from Hong Kong; *L. spinicarpa*, *L. bannwarthi* (Olerod, 1970) from the Philippines. This specimen is somewhat similar to that of *L. alcyone* Imbach by the bifid tooth on the posterodistal corner of the third pleonal epimeron. However this material needs cross referencing before it can be announced with confidence.

**Family Hyalidae**

*Hyale* sp. A

*Samples*. 7367 (39).

*Remarks*. From macroalgal washing. There are about five reported species of *Hyale* from South China Sea. Huang (1994) reported *H. dollfusi* (Chevreux), *H. grandicornis* (Kroyer), *H. honoluluenesis* (Schellenberg) from the waters of Vietnam while Moore (1990) recorded *H. sp. B. and H. sp C* from the waters of Hong Kong. There are 77 species recorded worldwide and the identification of this specimen is still underway.
Family Liljeborgiidae
Listriella sp. A

Samples. 7361 (1).
Remarks. Taken from grab samples of muddy sand area. This will be the first record of this genus from the waters of South China Sea. Although this specimen has only one individual, it distinguished from the other liljeborgid amphipods by bearing a weak blunt posterior process of article 5 of gnathopods 1 and 2.

Family Urothoidae
Urothoe gelasina Imbach, 1967

U. gelasina Imbach. Imbach, 1967 p. 76 (for full synonymy)
Samples. 7361 (17), 7362 (15), 7363 (2), 7364(26), 7365(15), 7366(3).
Remarks. Taken mostly from grab samples of muddy sand area. This specimen shows similarity to U. gelasina of Imbach in having two-articulate accessory flagellum and the second article of inner ramus of uropod 3.

Family Phoxocephalidae
Mandibulophoxus sp. A

Samples. 7364 (2), 7365(5), 7366(3).
Remarks. Specimens taken from grab samples of muddy sand area. The genus Mandibulophoxus is the first record from South China Sea area. It differs from the other known genus of this area by having prominent eyes and strongly spinose rami of uropod 1.

Family Podoceridae
Podocerus sp. A

Samples. 7367 (393).
Remarks. The genus Podocerus is difficult taxonomically because the fragility of appendages usually results in incomplete specimens. There are three species of this genus recorded from the South China Sea, P. inconspicuus Stebbing, P. umigame Yamato (1992) and P. sp. A Moore (1990). Comparisons are difficult to make with incomplete descriptions of references. Therefore, the status of this specimen will have to remain in question.

Family Stenothoidae
Stenothoe sp. A

Samples. 7367 (70).
Remarks. This is the first record of this family from the waters of South China Sea. This family is characterized by a uniramus uropod 3 composed of 3 segments, coxa 1 is strongly reduced in size and covered by a large coxa 2 while coxa 4 is even more enlarge. Description of this specimen is still imminent.
Suborder Caprellidea
Family Caprellidae

Caprella sp. A

Samples. 7367 (2), 7372 (2).

Remarks. According to Lowry (2000) no studies have been made on caprellidean amphipods in the South China Sea. The present specimen represents the first record of this suborder from this area. Further examination is needed to determine until the species level. However this specimen match the description of the genus Caprella (Lamark) by having gills on pereonites 3-4 and the absence of pereopods 3-4. Associated with macroalgaes and coral rubbles.

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References


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