SOME NOTES ON MELANOPSIDAE (GASTROPODA) OF MESOPOTAMIA

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ABSTRACT
An investigation to clarify some obscurity about Melanopsidae was performed on specimens collected from different sites of the South of Iraq. Three different morphs were recognized, two are widespread: Melanopsis costata and Melanopsis nodosa, the other Melanopsis subtingitana has a narrow distributions. Key words: Melanopsidae; Melanopsis costata; Melanopsis nodosa; Melanopsis subtingitana; South of Iraq

INTRODUCTION
Tchernov (1975) suggested that in Melanopsis Ferussac all shell variation reflects ecotypes belonging to a single circum-Mediterranean species (M. praemorsum), but Bilgin (1983) concluded that (smooth) M. praemorsa and (ribbed) M. costata are different species.

The first reference to Melanopsis Ferussac in the Mesopotamia is in Prashad (1921), who illustrated three species, M. costata, M. nodosa and M. subtingitana. But there are some confusions that still exist in the identification of Melanopsidae as all who worked on this family dealt with it as a single species M. nodosa. So the aim of the present study is to uncover a vague about Melanopsidae in Mesopotamia.

MATERIALS AND METHODS
Specimens of Melanopsis Ferussac were collected from Euphrates river, Al-Hammar marshes, Al-Huwaizah marshes, and Shatt Al-Arab river (Fig.1). They were collected with sieve or picked up from stones. General conchometrics (Fig.2) include shell-height, shell-diameter, mouth-height, and mouth diameter, all were measured with a varniar caliper.

Fig. 1. The sampling sites
RESULTS AND DISCUSSION

The present study reveals the presence of three Melanopsis species in the lower Mesopotamia: two are widespread (M. costata & M. nodosa), and one has narrow distribution (M. subtingitana).

Systematic Description
Family Melanopsidae
Genus Melanopsis Ferussac, 1807

**Diagnosis**

The shell is thick, imperforate, and may be smooth or heavily ribbed. A notch is present at the base of the mouth, where the outer and inner lips meet. The upper part usually contains a callus in the lower half. The columella is truncate (Heller et al., 1999).

The three Melanopsis species of the Mesopotamia are described below.

**Melanopsis nodosa** (Ferussac, 1874)

(Fig. 3, Table 1)

Melanopsis nodosa, Mousson, 1874: Journ. Conchyliol. XXII, P. 48


Melanopsis nodosa, Annandale, 1918: Rec. Ind. Mus., XV, P. 163

**Material examined**

- 55 specimens, Al-Hammar marshes, 27.6.2006
- 4 specimens, Al-Huwaizah marshes, 4.7.2006
- 60 specimens, Euphrates river, 22.11.2006
- 35 specimens, Garmat Ali-river, 23.6.2006

**Fig. (2): Shell conchometrics. Abbreviations: MH, Mouth-Height; MD, Mouth-Diameter; SH, Shell-Height; SD, Shell-Diameter.**

**Fig. (3): Melanopsis nodosa (seenodes on shell)**
**Diagnosis**
The shell is spindle-shaped, oval. The sculpture of the radial nodes, separated by depressed interstices, and faint depression running around body whorl. The Aperture is oval, angulated above with short deep anterior canal. The columellar lip is broad, strongly folded with callus.

**Table(1). Conchometrics of M. nodosa from Mesopotamia (n=45)**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Average (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shell-height</td>
<td>20.4</td>
</tr>
<tr>
<td>Shell-diameter</td>
<td>9.8</td>
</tr>
<tr>
<td>Mouth-height</td>
<td>8.6</td>
</tr>
<tr>
<td>Mouth-diameter</td>
<td>4.9</td>
</tr>
</tbody>
</table>

**Remarks**
*M. nodosa* differs from *M. costata* in that it has nodes on the shell.

**Habitat and Distribution:**
*M. nodosa* is widespread in occurrence. It lives in a wide variety of aquatic habitats, on stones, on aquatic plants *Ceratophyllum demersum*, and sometimes also on silty mud. *M. nodosa* is widespread in Al-Hammar marshes (30.4130 °N-47.3529 °E), Garmat-Ali river (30.3501 °N-47.4501 °E), and lower Euphrates river (near the power station of Nasariyeh city), but it has a narrow distribution in Al-Huwaizah marshes (31.3412 °N-47.3011 °E).

It was also recorded in Iran, restricted to Khuzestan, South West of Iran (Annandale & Prashad, 1919; Mansoorian, 1994).

**Melanopsis costata** (Oliver, 1804)
(Fig. 4, Table. 2)
*Melanopsis costata*, Mousson, 1874, op. cit., pp.48-49
*Melanopsis costata*, Brot, 1879, op.cit., pp. 426-429, pl.xlvi, figs. 4-7
*Melanopsis costata*, Preston, 1913, Journ. As. Soc. Bengal, IX, P.467

**Material examined**
96 specimens, Al-Hammar marshes, 27.6.2006
25 specimens, Al-Huwaizah marshes, 4.7.2006
98 specimens, Euphrates river, 22.11.2006
56 specimens, Garmat Ali- river, 23.6.2006

**Fig. 4. Melanopsis costata** (see ribs on shell)
**Diagnosis**
The shell is ribbed, except for its uppermost whorls. The ribs almost always extend the entire height of each whorl and most of them descend vertically; sometimes however, the ribs above the mouth may be bend leftwards, towards the columella. The ribs are almost uniform rather than bumpy and the upper section of each rib (near the suture) is almost always rounded. Shell colour, which varies from grayish yellow to reddish brown or black, may be uniform or banded.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Range (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shell-height</td>
<td>22.2</td>
</tr>
<tr>
<td>Shell-diameter</td>
<td>10.4</td>
</tr>
<tr>
<td>Mouth-height</td>
<td>10.1</td>
</tr>
<tr>
<td>Mouth-diameter</td>
<td>5.2</td>
</tr>
</tbody>
</table>

**Remarks**
*M. costata* differs from *M. nodosa*, in its ribbed shell.

**Habitat and Distribution:**
*M. costata* is widespread in occurrence. It lives in a wide variety of aquatic habitats, on stones, on aquatic plants *Ceratophyllum demersum*, and sometimes also on silty mud. *M. costata* is widespread in Al-Hammar marshes (30.4130 °N- 47.3529 °E), Garmat-Ali river (30.3501 °N-47.4501 °E), and lower Euphrates river (near the power station of Nasariyeh city), and in Al-Huwaizah marshes (31.3412 °N-47.3011 °E).
*M. costata* is widely distributed throughout Syria, Palestine, Jordan valley and in Europe (Heller & Sivan, 2001, 2002). It was also recorded from Iran, restricted to Khuzestan, South West of Iran (Annandale & Prashad, 1919; Mansoorian, 1994).

**Melanopsis subtingitana**
(Fig. 5,6, Table. 3)
*Melanopsis subtingitana*, Annandale,1918, *op.cit.*, pp. 163, pl.xx, figs.1,2.

**Material examined**
13 specimens, Al-Hammar marshes, 27.6.2006
38 specimens, Euphrates river, 22.11.2006
15 specimens, Garmat Ali- river, 23.6.2006

From the creek connected with Diala river, Mesopotamia (Prashad, 1921)
**Diagnosis**
The shell is thick, smooth, with a very regular ovate-conical shape, narrow, sharply pointed at the apex, from which it increases gradually and evenly. The spire is conical, unbroken, with suture little impressed and the whorls not at all swollen. Seven or seven and a half whorls persist in the adult shell. The mouth of the shell is narrowly ellipsoidal and is produced backwards in the form of a narrow slit which is at first straight and then curves inwards and is not protected by an overhanging lip. The columella is almost straight and pointed at its extremity, which does not projects beyond the lip. The callus is poorly developed.

**Table 3. Conchometrics of M. subtingitana from Mesopotamia (n=22)**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Average (mm)</th>
</tr>
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<tbody>
<tr>
<td>Shell-height</td>
<td>16.9</td>
</tr>
<tr>
<td>Shell-diameter</td>
<td>7.5</td>
</tr>
<tr>
<td>Mouth-height</td>
<td>8.1</td>
</tr>
<tr>
<td>Mouth-diameter</td>
<td>4.1</td>
</tr>
</tbody>
</table>

**Remarks**
*M. subtingitana* differs from *M. nodosa* and *M. costata* in its smooth shell.

**Habitat and Distribution:**
*M. subtingitana* has a narrow distribution in Mesopotamia. It lives in wide varieties of aquatic habitat, on stones and on aquatic plants *Ceratophyllum demersum*. *M. subtingitana* is spread in Al-Hammar marshes (30.4130 °N-47.3529 °E), Garmat-Ali river (30.3501 °N-47.4501 °E), and lower Euphrates river (near the power station of Nasariyeh city), it is absent in Al-Huwaizah marshes.

**REFERENCES**
بعض الملاحظات عن عائلة Melanopsidae

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الخلاصة
تم فحص عدد من بطنيات القدم تعود إلى عائلة Melanopsidae من اماكن مختلفة من جنوب العراق لتوثيق بعض الخصائص عن هذه العائلة. ثلاثة أشكال مختلفة تم تمييزها وهي: Melanopsis nodosa, Melanopsis costata ذات الانتشار الواسع و Melanopsis subtingitana ذو الانتشار الضيق في مياه جنوب العراق.