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**SHORT COMMNUCATION**

# MOLLUSCAN SPECIES IN AL-DALMAJ MARSH, IRAQ: A FIELD SURVEY

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## ABSTRACT

Al-Dalmaj marsh is one of the most important marshes in Iraq; it extends from Al-Qadisiyah Province in the west to Wasit Province in the east, south of the Tigris and Euphrates Rivers. In order to study the malacological diversity of this site, a survey of the marsh molluscs species was made during this study. About 177 specimens were collected, seven species of gastropods belonging to six families and two species of Bivalves belonging to one family were identified, remarks on the nomenclature, taxonomy and distribution of these species. According to this study Al-Dalmaj Marsh includes diverse molluscs species and the presented results will provide important information for future studies concerned with the molluscs or Invertebrates biodiversity state of this important ecosystem in Iraq.

Key words: Bivalvia, Distribution, Gastropoda, Hor, Iraq.

## INTRODUCTION

The Iraqi Al-Dalmaj Marsh (locally named Hor Al-Dalmaj) is located between the two provinces of Al-Qadisiyah (west) and Wasit (east), in the southern basin of the Tigris and the Euphrates Rivers, with about 682 km² total area, at a distance of 170 km from Baghdad (Abd AL-Khenifsawy and Al-Mayli, 2022). Al-Dalmaj Marsh is characterized by diverse aquatic and terrestrial habitat, and its water is classified as brackish duo to its salinity concentration which is between 3.33– 5.7 ppt (Kadhum *et al*., 2018). A previous study concerned with the diversity of molluscs in this marsh was conducted by Al-Jasimee and Hussein (2023) and it highlighted the occurrence of several gastropods and bivalves. The in interest of a biodiversity study of the marshes is great because of the importance of this water environment in Iraq, and because a few studies have been concerned with the malacofauna biodiversity of this ecosystem. This study aimed to study the existing mollusca in this region.

**Specimens collection**: The southern part of the marsh in Al-Diwaniyah City was chosen for the mollusc biodiversity study (Map1). From this part, the specimens were collected by the use of appropriate sieves, for the period between September 2022 and April 2023, at a depth of less than 1 m, then they were preserved in an alcohol solution with a concentration of 70%

(Forsyth, 1999). The shell measurements have been taken, and the morphological characteristics of the specimen shells were examined by a stereoscopic microscope for the purpose of identification. The species were identified by identification keys (Rogers and Thorp, 2019; Jihad, 2021). For the purpose of standardizing and correcting the scientific names, and the taxon names were checked by Molluscabase (2023). The map was designed by using ArcGIS software.

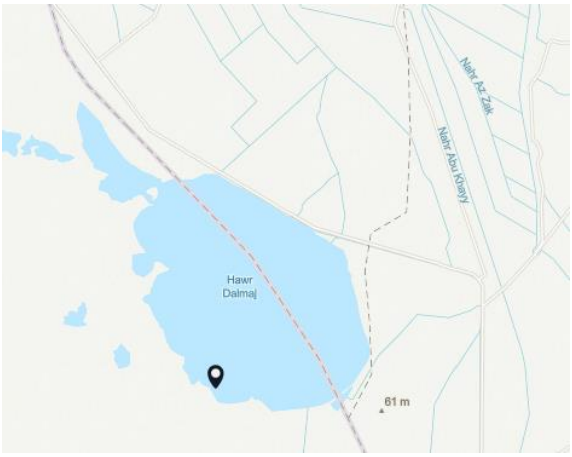
**The studied species and discussion**: The results from the survey revealed nine species of molluscs, of which seven were gastropods and two were bivalves, all belonging to seven different families.

**Table (1)**: The molluscan species, synonyms, material examined and distribution.

| Classification | Species synonyms | No. of specimens examined | Distribution |
|---|---|---|---|
| **Phylum: Mollusca**<br>**Class: Gastropoda**<br>**1-Order: Architaenioglossa**<br>**A-Family: Viviparidae**<br>***Bellamya unicolor*** (Olivier, 1804) (Pl.1A) | *Bellamya bellamya* Jousseaum, 1886<br>*B. gracilior* (E. von Martens, 1903)<br>*Cyclostoma unicolor* Olivier, 1804<br>*Vivipara unicolor* (Olivier, 1804) | 10 | Western Africa and Nile (Odlera *et al*., 2013) |
| ***Filopaludina bengalensis*** (Lamarck, 1822) (Pl.1B) | *Paludina bengalensis* Lamarck, 1822<br>*Vivipara bengalensis* (Lamarck, 1822)<br>*Viviparus bengalensis* (Lamarck, 1822) | 12 | Iran, India and Myanmar (Budha *et al*., 2010 ) |
| **B-Family: Lymnaeidae**<br>***Lymnaea*** sp. (Pl.1C) | | 28 | |
| **2-Order: Cycloneritida**<br>**Family: Neritidae**<br>***Theodoxus jordani*** (Sowerby I, 1836)(Pl.1D) | *Neritina euphratica* Mousson, 1874<br>*Neritina mesopotamica* Mousson, 1874 | 15 | Distributed in the Near East, except the Arabian Peninsula (Amr *et al*., 2014). |
| **3-Order: Caenogastropoda**<br>**A-Family: Thiaridae**<br>***Melanoides tuberculata*** (O. F. Müller, 1774)(Pl.1E) | *Thiara tuberculata* (O.F.Müller, 1774)<br>*Nerita tuberculata* O.F.Müller, 1774<br>*Melania javanica* Brot, 1877 | 50 | Eastern Mediterranean, southeast Asia, Malaysia and India, eastern Africa (Jihad and Makawi, 2022). |
| **B-Family: Melanopsidae**<br>***Melanopsis praemorsa*** (Linnaeus, 1758)(Pl.1F) | *Buccinum praemorsum* L., 1758 ·<br>*B. praerosum* L., 1767 ·<br>*Melanopsis praerosa* (Linnaeus, 1767) | 18 | Syria, Lebanon, turkey, Jordan (Heller and Sivan, 2002), Iran, Iraq (Glöer and Pešić, 2012), Palaearctic |

| | | | |
|---|---|---|---|
| | | | Region (Rogers and Thorp, 2019). |
| **4-Superorder : Hygrophila**<br>Family: Physidae<br>Genus: *Physella*<br>***Physella acuta*** (Draparnaud, 1805)(Pl.1G) | *Aplecta orbignyi* Mazé,1883<br>*A. rivalis* (Maton and Rackett, 1807) ·<br>*Aplexa rivalis* (Maton and Rackett, 1807)<br>*Bulinus acutus* (Draparnaud, 1805) | 25 | Widely distributed in many countries of Europe, Asia, Australia and Hawaii (Paraense and Pointier, 2003), South Africa (Kock and Wolmaranas, 2007) |
| **Class: Bivalvia**<br>**Order: Veneridae**<br>**Family: Cyrenidae**<br>***Corbicula fluminea*** (O. F. Müller, 1774)(Pl.1H) | *Corbicula andersoniana* G. Nevill, 1877<br>*C. aquilina* Heude, 1880<br>*C. astronomica* Heude, 1880 | 17 | Eastern Asia, South and North America, Europe(Crespo *et al*., 2015) |
| ***Corbicula fluminalis*** (O. F. Müller, 1774)(Pl.1I) | *Corbicula aegyptiaca* Germain, 1906<br>*C. alba* Clessin, 1877<br>*C. artini* Pallary, 1902<br>*C. cor* (Lamarck, 1818) | 3 | Oriental Africa and northwest Africa, Central Asia and the Middle East (Korniushin, 2004) |

The malacofauna of the Iraqi marshes generally, and particularly that of Al- Dalmaj Marsh, has attracted little attention. In this study, we collected and provided information about the mollusc diversity of this area. The current results showed the presence of different species of molluscs including seven of gastropods and two of bivalves; *Melanoides tuberculata* was the most abundant species. The results of this study enhancing our knowledge of Al-Dalmaj malacofauna.




**Map (1):** Shows selected site of study area on Al-Dalmaj Marsh.


**Plate(1):** (A) *Bellamya unicolor*, (B) *Filopaludina bengalensis*, (C) *Lymnaea* sp., (D) *Theodoxus jordani*, (E) *Melanoides tuberculate*, (F) *Melanopsis praemorsa*, (G) *Physa acuta*, (H) *Corbicula fluminea*, (I) *Corbicula fluminalis*. [Scale 2 mm].

## CONCLUSIONS

It is obvious that the Al-Dalmaj area represents one of the most important Iraqi wetlands with considerable biological diversity. According to the current study, *Melanoides tuberculate* was the dominant species, and this result agrees with the findings of (Al-Jasimee and Hussein,

2023). Whereas the studies concerned in this ecosystem are not adequate, moreover, the present study did not cover all regions of the marsh, so more studies must be made in the marsh to obtaining the overall biodiversity state of the marsh.

## CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interest to declare. We "the authors" have followed and signed the scientific research ethics announced by the journal.

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# أنواع الرخويات في هور الدمج، العراق: دراسة ميدانية

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## الخلاصة

يعد هور الدلمج من أهم الأهوار في العراق، ويمتد من محافظة القادسية غربا إلى محافظة واسط شرقا، جنوب نهري دجلة والفرات. من أجل دراسة تنوع الرخويات لهذا الموقع المهم. اجري مسح لأنواع رخويات الأهوار خلال هذه الدراسة. جمعت حوالي 177 عينة، وتم تشخيص سبعة أنواع من بطنيات الأقدام تنتمي إلى ست عائلات، كما تم تحديد نوعين من ذوات الصدفتين تنتمي إلى عائلة واحدة، مع ملاحظات حول تسمية وتصنيف وتوزيع هذه الأنواع، وفقا لهذه الدراسة فإن هور الدلمج يضم أنواعا مختلفة من أنواع الرخويات وستوفر النتائج المقدمة في هذه الدراسة معلومات هامة للدراسات المستقبلية المتعلقة بحالة التنوع البيولوجي للرخويات واللافقاريات في هذا النظام البيئي المهم في العراق.