

## Original Article

# New record of *Cypridopsis vidua* (Muller, 1776) (Ostracoda, Podocopida: Cyprididae) from East Al-Hammar Marshes, Iraq

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**Abstract:** In the present study, *Cypridopsis vidua* (Muller, 1776), was recorded for the first time from the East Al-Hammar marshes, South of Iraq. This species was collected from three stations during January and December 2021. The morphological features of the collected specimens were described for further taxonomic studies. In addition, some water quality parameters viz. temperature, PH, salinity, dissolved oxygen, turbidity, conductivity, and total dissolved solids were measured of the sampling station during the study period are provided.

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## Introduction

Ostracoda are small Crustaceans inhabiting aquatic environments characterized by having a body completely enclosed between two valves as calcified shells. *Cypridopsis vidua* (Muller, 1776) (Podocopida: Cyprididae) is found in a wide range of aquatic habitats as an active swimmer, which prefers both large and small permanent water bodies that are rich in vegetation, such as fish ponds (Roca and Danielopol, 1993), the littoral zone of lakes, and slow rivers. It prefers shady areas with rich vegetation (Mbahinzireki et al., 1991). In addition, *C. vidua* is found in temporary ponds, springs, well, and the interstitial habitat. It feeds on the Aufwuchs, developing on aquatic plants, especially char stems and leaves (Roca and Danielopol, 1991).

Al-Hammar marsh extends from Suq Al-Shuyoukh area in Dhi Qar to Basra Governorate, Iraq, with a length of 90 km, a width of 30 km, and an average depth of 3 m (Salman et al., 2014). This marsh is affected by the half-daily tides through the Shatt Al-Arab (Hussain et al., 2007) (Fig. 1). In a study on the Ostracoda of east Al-Hammar marshes, located south of the Euphrates River in Iraq, we collected *C. vidua*

for the first time from this marsh and reported it here.

## Materials and Methods

*Cypridopsis vidua* was collected from East Al-Hammar marshes from three sampling stations, including Al-Sallal, Al-Nakara, and Al-Meshab stations using zooplankton net (with 0.1 mm mesh and 43 cm ring diameter) the water surface and pulling net for 15 minutes by boat of under the surface of the water during January and December 2021. The samples were fixed into 4% buffered formalin in 500 ml bottles labeled by collection data and brought to the laboratory. Then they were examined under a wild-type dissecting microscope (Humascope type).

In addition, some *C. vidua* samples were collected from sediment at a depth of 3 m from three sampling stations using a grab-bottom sampler. These samples were washed with station water using a zooplankton net and, then these waters were filtered into a 500 ml plastic bottle, fixed 4% buffered formalin, and transferred to the laboratory. The samples were washed and filtered by a zooplankton net (0.1 mm mesh) in the laboratory, and the organisms were separated from other debris. Under pressurized tap

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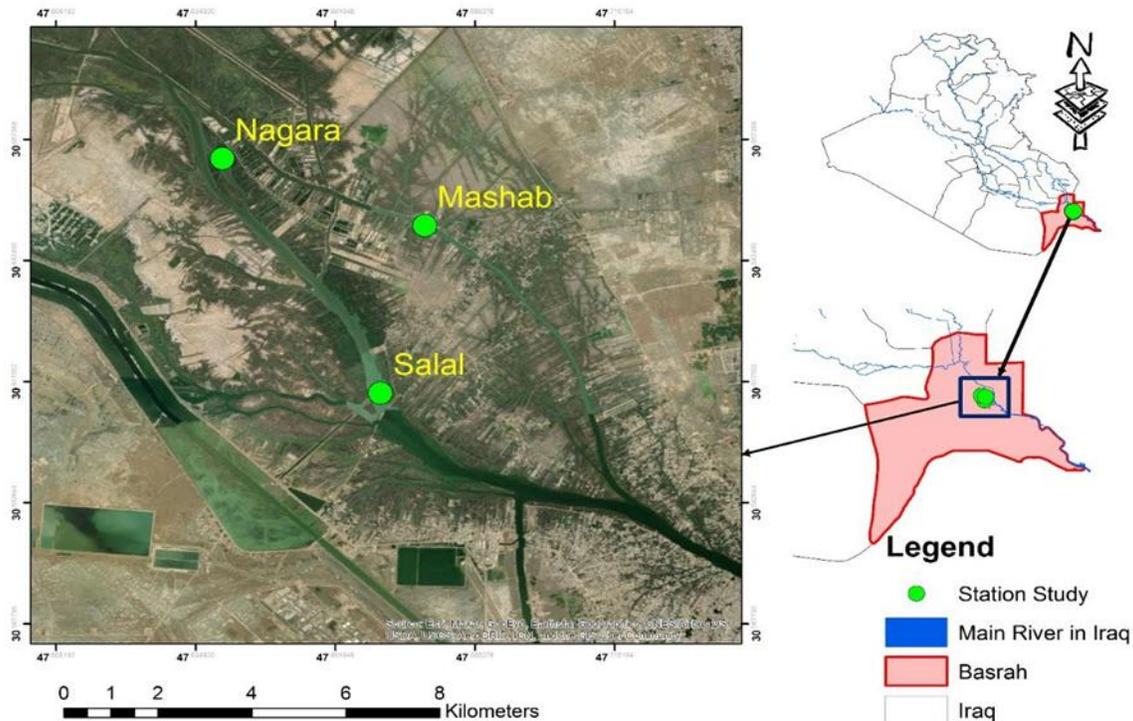


Figure 1. sampling stations in the East Al-Hammar Marshes, south of Iraq.

water, the valve of *C. vidua* was separated from the soft body, dissected, and identified based on both soft body parts and valve morphology (using proper keys (Meisch, 2000; Karanovic, 2012), then the samples were classified by compound microscope Humascope type. Furthermore, the morphological features of the collected specimens were described for further taxonomic studies. In addition, some water quality parameters viz. temperature, PH, salinity, dissolved oxygen, turbidity, conductivity, and total dissolved solids were measured in the field during the sampling period.

## Results

### *Cypridopsis vidua* (Muller, 1776)

(Fig. 2)

**Description:** Female, Carapace oval shape in both lateral and dorsal views, left valve slightly longer than right one, and left valve overlaps right one ventrally. Carapace in dorsal view: anterior end rounded to pointed, left valve slightly overlaps right valve anteriorly. Both valves about equally long at posterior end. Posteroventral marginal zone of left valve with double-folded inner list, in right valve, list runs close

to self-age. Anterior external marginal zone of right valve with a row of 17 tiny pustules (Fig. 2).

Antennae nugaratory setae extending beyond tips of terminal claws with 1/4 of total length; mandibular palp with setae thick and feathery; maxillular palp: terminal segment cylindrical, longer than broad; teeth bristles of third thoracic leg masticatory lobe smooth. Respiratory plate of maxilliped usually with five filaments; walking leg short and strongly developed, while cleaning leg without special characters; size of female 0.5 mm. Male: unknown.

**Environmental parameters:** Al-Hammar marshes' depth ranges from 0-3 m. Water temperature in the sampling stations was recorded at its highest value of 34.5°C in the summer and its lowest value of 12.2°C in the winter. PH was at its highest value of 6.7 and 9.06 in the summer and winter, respectively. The salinity was between 1.3 ppt in summer and 5.8 ppt in winter, and the turbidity was at its highest at 101 NTU in spring and 2.2 NTU in winter. The conductivity was at its highest value of 9.2 mi.c/cm in spring and its lowest value of 2.8 mi.c/cm in autumn. The highest value of the total dissolved solid was 5.7 mg/l in spring and 1.8 mg/l in autumn was the lowest value.



Figure 2. *Cypridopsis vidua* collected from Al-Hammar Marshes.

## Discussions

In the present study, *C. vidua* was recorded for the first time in the East Al-Hammar marshes. The East Hammar Marsh has encountered a rise in its salinity due to the incursion of the seawater through the Shatt Al-Arab due to the decrease in the flows of the Euphrates-Tigris River system, which directly or indirectly affected its living organisms in general and Ostracoda in particular. The biotic and abiotic factors affect the abundance and distribution of *C. vidua* in the eastern Al-Hammar marshes. The densest Ostracoda presence was recorded in the eastern Al-Hammar marsh in the sediments and surface water. *Cypridopsis vidua* is found worldwide (Meisch, 2000). In the lake, the animals were found at depth of 0-30 m (Loffler, 1969) and can tolerate a slight increase in salinity up to 8 ppt (Hiller, 1972). The species has a very low tolerance for poorly oxygenated waters. In the laboratory, the animal survives only a few days at an oxygen tension of 0.1 mg/l (Danielopol, 1991).

The remarkable phenotypic variation of *C. vidua* has led to the description of a number of distinct species differing in carapace shape, size, color pattern, and the number of filaments of the MXP - respiratory plate. As animals with transitional characters have repeatedly been found in *C. okeecho* (Furtos, 1936), described from North America might be the bisexual form of *C. vidua*, but this needs further investigation. The three species of *Pionocypris* viz. *P. assimilis* (Sars, 1895), *P. intermedia* (Sars, 1924), and *P. videos* (Sars, 1895) described by Sars (1924) from South

Africa are probably junior synonyms of *C. vidua* (Meisch, 2000). *Cypridopsis obesa*, *C. Parva*, and *C. Helvetica* (Brady and Robertsons, 1869) are subspecies or varieties of *C. vidua* (Sars, 1925; Beyer and Meisch, 1996).

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