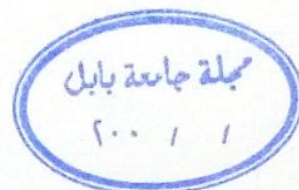


# RECORDS OF CLADOCERA ( CRUSTACEAN ) FROM AL – NAJAF FRESHWATER SYSTEM, AL- NAJAF PROVINCE, IRAQ

Majida Sabah Al-Anezy  
College Of Science, Univ. of Kufa



## Abstract

A total of eight species of cladocera have been identified from some pools and drainage canals in Al – Najaf province .

Two species , *Pleuroxis trigonellus* , and *Scapholeberis rammneri* , are new records for Iraq .

## Introduction

Cladocera play an important role in the aquatic food chain. Many species were recorded from different areas of Iraq (Gurney, 1921; Mohammad, 1965, 1980, 1986; Samirnov , 1976 ; Al – Saboonchi , et al , 1986 and Ageal , 1996)

The present is an attempt to add additional record and distribution of cladocera in other Iraqi water bodies , and for the first time to give an description for the most diagnostic features of record species .

## Materials & Methods

Samples were taken from three stations

### First station :

A small pool alongside Al – Kufa , Babylon main road , near Kufa sailo . About 150 m in length and 50 m in width its depth ranged between (0.3–15) m . It contain thick growth of vegetation consisting mainly of filamentous green algae (*Spirogera* and *Cladophora*) and, floating aquatic plant (*Lymnaea*) .

### Second Station :

A drainage canal along side Al – Kufa – babylon tourist road . About 5 km length and (1–2.5) m in width and its depth ranged between about (0.5 – 2.0 ) m . The predominant flora of this canal include *Cyprus* , potamogeton and mats of filamentous algae .

### Third Station

A branch from Al– Hafar drainage canal, near Al– Kufa , - Al– Abassiya main road , 2 km long and about 1–1.5 m width and about 0.5–1.75 m in depth a weedy canal and *Cyprus* and potamogeton spread along side .

Samples of zooplankton were collected during January – March 2004 by the use of No. 55 plankton net (mesh size, Ca. 60 Mm) , where the cladocera population was large in number of individual, the species were taken by dipping a large mouthed jar in the water , the sample were preserved in 5 % formalin – sugar solution (Haney and Hall , 1973 ) .

Drawing of the animals were made in camera lucida showing the distinguishing characteristics among the species .

## Results And Discussion

A systematic list of the species which has been identified during the present study is given below :

Order :	Cladocera	Calman
Family :	Daphnidae	Straus
Genus :	<i>Daphnia</i>	O. F. Muller
1. <i>D. magna</i>	Straus	
Genus :	<i>Scapholeberis</i>	Schoedler



2. *S. rammneri* Dumont & Pensaert  
Genus : *Simocephalus* Schoedler
3. *S. exspinosus* Koch  
Genus : *Ceriodaphnia* Dana
4. *C. reticulata* Jurine  
Genus : *Moina* Baird
5. *M. rectirostris* Leydig  
Family : *Chydoridae* Stebbing  
Genus : *Alona* Baird
6. *Alona karua* King  
Genus : *Pleuroxus* Baird
7. *P. trigonellus* O. F. Mueller  
Genus : *Chydorus* Leach
8. *C. sphaericus* O. F. Mueller

Figures (1– 8) showed the most diagnostic characters of recorded species . A total of 8 species of cladocera , 2 species , *Scapholeberis rammeneri* and *Pleuroxis trigonellus* are new records for Iraq .

#### 1. *Daphnia magna* , Straus , 1820

##### Description

Female rostrum well marked and pointed (fig. 1a) . Antennae long , not strong , cylindrical, (fig. 1b) . Postabdomen with deeply sinuate posterior margin (fig. 1c) . The ephippial eggs lie at right angles to the dorsal edge of ephippium (fig. 1d) . Length female to 5.0 mm .

Male .. male with large spinulate genital papilla at base of postabdominal claw (fig. 1e,f) . Length male 2.0 mm or more .

Fig. ( 1 ) *Daphnia magna*  
 , Female .

a. Lateral view .

b. Antennae .

c. Postabdomen .

d. Ephippial eggs .

*Daphnia magna* , Male

e. Lateral view .

f. Postabdomen .



*D. magna* is a common and widely distributed species occurring in several localities of Iraq ( Gurney , 1921 ; Mohammed , 1965 ; and Ageal , 1986 ) .

## 2. *Scapholeberis rammneri* Dumont & Pensaret , 1983

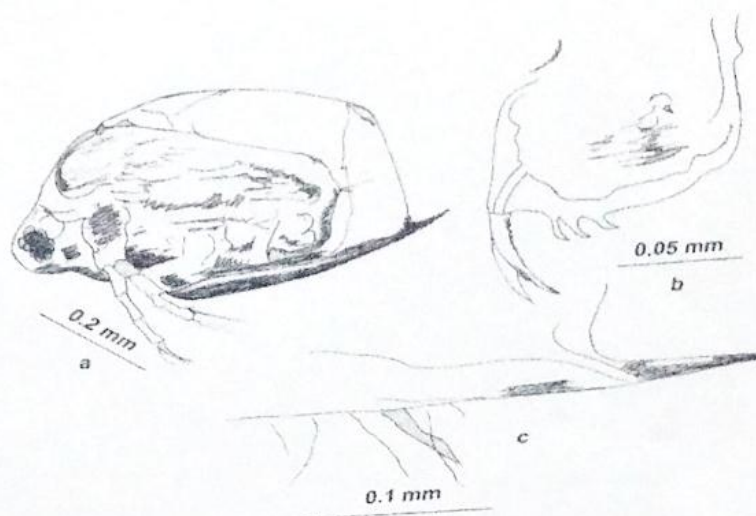
### Description :

Female .. (fig. 2a) Longest axis 0.45 – 1.35 mm , color dark brown , head large , rostrum broadly triangular , eyes bulbously projecting above rostrum , creating abroad but shallow depression along the sides of the head , dorsally not lined by asclerotized crest .

Postabdomen .. (fig. 2b) Including end claw , and trunk limbs . Valve shape , including ventral sucker (plate 2 : 3) . Distal valve margin with a wide terminal hyaline membrane , and an internal , finely denticulated membrane with 3 – 4 hooks , and coarse spinules dorsal to the upper hook ( fig. 2c ) .

Fig . ( 2 ) *Scapholeberis rammneri* , Female .

- a. Lateral view .
- b. Postabdomen
- c. ventro – Posterior corner of valves .



Dumont & Perisaert (1983) raised *Scapholeberis* daphnids group to the rank of subfamily "Scapholebrinae" which composed of two genera *scapholeberis* and *megafenstra*, separated by a series of characters , in addition , a new species *S. rammneri* was described

The wide terminal hyaline membrane and the absence of spines on the valves will differentiate *S. rammneri* from all other *scapholeberis* with which it might co-occur Dumont & Pensaert , 1983 ) .

Confusion with *S. mucronata* and *S. kingi* and unreliable published figures prevent a more precise definition of its range .

## 3. *Simocephalus exspinosus* Koach , 1841

### Description :

Body large and heavy ; shell thick. Head and rostrum small . Valves large , somewhat quadrate . No posterior spine on valves ( fig. 3a ) . Postabdomen slightly narrower toward apex ( fig. 3b ) .

Claw with pecten of 8 to 12 teeth at its base and with row of fine teeth distal to the pecten ( fig. 3c ) . First trunk limb without flagellum and with small hook ( fig. 3d ) . Length , female to 3.0 mm ; male to 1.3 mm.



**Fig. ( 3 ) :**  
***Simocephalus***  
***exsoinosus* ,**  
**Female .**  
a. Lateral view .  
b. Postabdomen  
c. Detail of claw .  
d. 1st trunk limb.



This is a common and widely distributed species occurring in several localities of Iraq . Its presence has been observed in the moat of Forat at Amara by Gurney (1921) , was found by Mohammad ( 1965 ) in a small pond near shatt Al – Arab at Qurna .

Mohammad ( 1986 ) , collected this species in the Euphrates lies just west Falluja city .

#### 4. *Ceriodaphnia reticulata* Jurine , 1820

##### Description :

Head rounded or obtusely angulated in front of antennules. Valves reticulated , ending in spine or angle . Antennules small with sense – hair near apex (fig. 4a) . Postabdomen with 7 to 10 anal spines ( fig. 4b ) Claw with pecten of 6 to 10 teeth and denticulate ( fig. 4c).

Color variable shades of red and yellow . Length , female 0.6 – 1.4 mm ; male 0.4 – 0.8 mm .



Fig . ( 4 ) :  
*Ceriodaphnia*  
*reticulate* , Female  
 a. Lateral view .    b.  
     Postabdomen .  
 c. Detail of claw .

The total numbers of this species was collected from station 3 . The species has been recorded from almost the whole world . In Iraq , this species recorded by Gurney ( 1921 ) in Amara , Mohammad (1965) has been taken from vegetations at margin of shatt Al-Arab . Mohammad (1986) , also collected this species from all areas investigated in Baghdad .

#### 5. *Moina rectrostris*    Leydig , 1860 .

##### Description

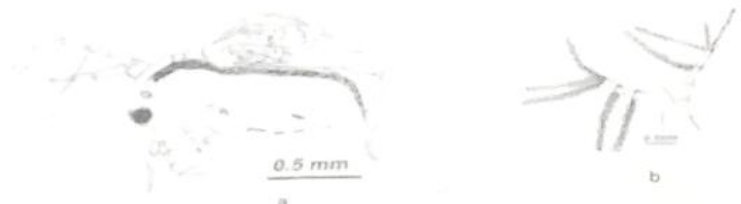
Female .. head extended or little depressed , deep cervical and supraocular depression , no rostrum ( Fig. 5a ) . Antennae long , spindle shaped , freely movable , lateral sense - hair about middle ( Fig. 5b ) .

Postabdomen with long projection and 10 to 15 postanal spines and bident ( Fig. 5c,d ) .

Male , first leg with hook ( Fig. 5g ) but female , first leg without hook ( Fig. 5h ) .

Summer eggs numerous , ephippium oval , with 1 or 2 egg ( Fig. 5i ) . Length , female 1.0 – 2.0 mm , male 0.4 – 0.6 to 1.0 mm .

Fig. (5) *Moina*  
*rectrostris* , female and  
 male.  
 a. female lateral view



This species was collected for the first time in Iraq at 1921 in flood pools at Amara by Gurney . Mohammad , ( 1986 ) collected *M. retrostris* on the Euphrates lies just west of Falluja city .

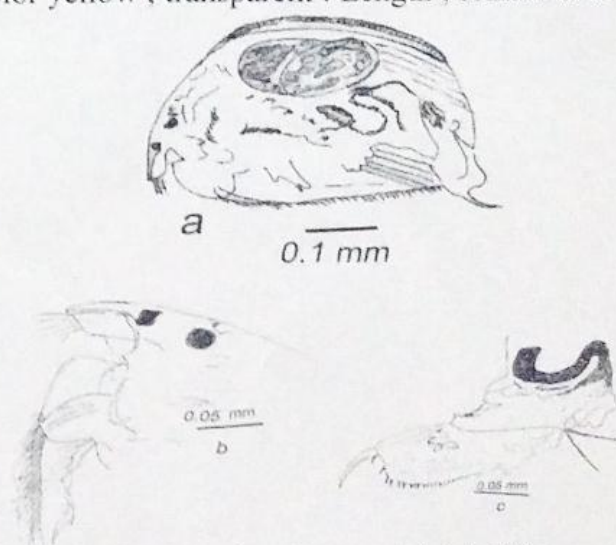
#### 6. *Alona karua* , King , 1853 .

##### Description :

General form sub quadrate , compressed , valves with oblique striae ( fig. 6a,b ) . Postabdomen broad , expanded behind anus ; apex rounded , with usually 8 minute margin denticels and as many larger later fascicles ( fig. 6c ) .

Claw with 1 small basal spine . Color yellow , transparent . Length , female 0.45 mm , male 0.23 mm .

Fig. (6) . *Alona karua* , female  
a. Lateral view , b. Head  
c. Postabdomen .



Small numbers of this species were collected from station 2 . Ageal ( 1998 ) was recorded this species for the first time in the shatt Al – Arab near Basrah .

#### 7. *Pleuroxus trigonellus* , O. F. Müller , 1785 .

##### Description :



Rostrum long and pointed ( fig. 7a ) . series of marginal denticles longer than anal emargination ( fig. 7b ) . Inferoposteal angle with 2 or 3 small teeth , often minute , sometimes wanting ( fig. 7c ) .

Postabdomen broadent in middle of postanal part with crescentic dorsal margin . Broader behind anus ; apex rounded ; 14 to 16 marginal denticles , longer toward apex . No spines , greatly narrowed toward apex ; forming a slender prolongation . ( fig. 7d ) . Color yellowish , transparent . Length , female 0.6 mm , male 0.4 mm .

Fig . (7) *Pleuroxus trigonellus* , female .  
a. Lateral view ,  
b. Head ,  
c . Inferoposteal angle of valve ,  
d. Postabdomen .



This species is new records for Iraq . *P. trigonellus* , found in ponds , slowly flowing waters , and small lakes exclusively in station 2 , and only parthenogenetic females were present in the materials .

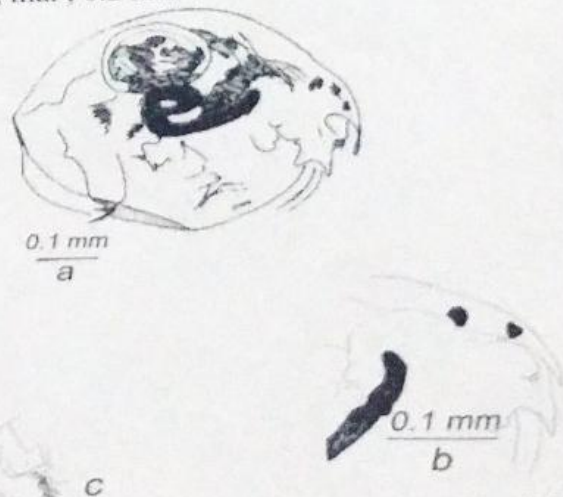
Although , this species is not common , widely distributed in U.S.A. & Canada ( Brooks , 1959 ) .

#### *Chydorus sphaericus* , O. F. Müller , 1785 . 8

##### Description :

Spherical or broadly elliptical . Shell usually reticulate sometimes smooth ( fig. 8a ) fornices gradually narrowing into rostrum ( fig. 8b ) . Postabdomen with 8 to 9 marginal denticles ( fig. 8c ) . Claws small , proximal basal spine very minute . Color , light yellow to dark brown . Length , femal 0.3 – 0.5 mm , mal , 0.2 mm .

Fig.( 8) *Chydorus sphaericus* , female ,  
a. Lateral view , b. Head ,  
c. Postabdomen .



This species is widely distributed in the world , numerous records are available from Iraq , including (Mohammad, 1965 ) in a canal near Wasilia , Kalaf and Samirnov (1976), Al- Saboonchi, *et al* (1986) in the Garmah marshes , records from the Euphrates and Tigris



near Baghdad by Mohammad (1986), and Ageel (1998), records this species in the shatt Al-Arab near Basrah .

### References :

- \* Al-Saboonchi , A.A. ; Barak , N. A. and Mohammed , A. M. (1986) Zooplankton of Garma marshes , Iraq. Jour. Biol. Scie. Res. , 17(1) : 33 – 40 .
- \* Ageel, S. Khaleeb.(1998) . Population dynamics and bioenergetics of two cladocerans (*Daphnia magna* & *Simocephalus vetulus*) in Basrah with reffery to zooplankton , ph.D Thesis , Colleg of Science , University of Basraha.
- \* Brooks , T. L. (1959) Cladocera in fresh water biology Edited by W. T. Edmondson . John Wiely and Sons , pp. xx+ 1248 .
- \* Dumont H.J. and Pensaert, J. (1983) A revision of the *Scapholeberinae* (Crustacea : Cladocera) . Hydrobiologia 100 , 3 – 45 .
- \* Gurney , R. (1921) Fresh – water crustacean collected by Dr. P. A. Buxton in Mesopotamia and Persia . Jour. Bom. Nat. Hist. Soc. , 27 : 835 – 843 .
- \* Haney , J. F. and Hall , D. J. (1973 ) Sugar – coated *Daphnia* : a preservation technique for cladocera . Limno. Oceanog. , 18 : 331 – 333 .
- \* Kalaf , A. N. and Smirnov , N. N. (1976) On littoral cladocera of Iraq . Hydrobiologia 51 (1) : 91 – 94 .
- \* Mohammad , M.B.M. (1965) A faunal study of the cladocera of Iraq . Bull. Biol. Res. Cent. , 1 : 1 – 11 .
- \* Mohammad , M.B.M. (1980) A hydrobiological survey of apolluted cana. Hydrobiologia , 74 : 179 – 186 .
- \* Mohammad , M.B.M. (1986) Associations of invertebrates in the Euphrates and Tigris rivers at Falluja and Baghdad , Iraq . Archiv Fur hydrobiology , 106 ( 3 ) : 337 – 350 .

### تسجيل أنواع من متفرعة اللوامس (القشريات) في المياه العذبة لمحافظة النجف ، العراق الخلاصة

تم تشخيص ثمانية أنواع من متفرعة اللوامس من بعض المستنقعات وقنوات البزل في محافظة النجف .  
سجل نوعين هما *Pleuroxis trigonellus* و *Scapholeberis rammneri* لأول مرة في العراق .

