

## On some Species of the Ostracode Genus *Polycope* from Baluti Formation (Upper Triassic), Northern Iraq

**Sanad A. Al-Khashab**  
Department of Geology  
College of Science  
University of Mosul

**Jawaher M. Al-Halawachi**  
Department of Geology  
College of Science  
University of Mosul

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### ABSTRACT

Five ostracode species belong to the genus *Polycope* have been described from Baluti Formation (Upper Triassic) of North Iraq, these are: *P. aghdarbandens* Tollman 1991, *P. bourquinae* Crasquin and Gradinaru 1996, *P. spp.* Forel and Crasquin 2011, *P. sp.A* Rosenfeld and Honigstein 1998 and *P. sp.* Monostori 1996.

**Keywords:** Ostracode, *Polycope*, Baluti Formation, Upper Triassic, North Iraq.

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بعض أنواع الأوستراكودا العائدة للجنس *Polycope* من تكوين بلوطي  
(الترياسي الاعلى) في شمال العراق

جواهر محفوظ الحلاجي

قسم علوم الارض

كلية العلوم

جامعة الموصل

سند عبد الإله الخشاب

قسم علوم الارض

كلية العلوم

جامعة الموصل

### المخلص

تم وصف خمسة أنواع من الأوستراكودا تنتمي الى الجنس *Polycope* من تكوين بلوطي (الترياسي الاعلى)، وهذه الأنواع هي:

*P. aghdarbandens* Tollman 1991, *P. bourquinae* Crasquin and Gradinaru 1996, *P. spp.* Forel and Crasquin 2011, *P. sp.A* Rosenfeld and Honigstein 1998 and *P. sp.* Monostori 1996.

**الكلمات الدالة:** الأوستراكودا، تكوين بلوطي، الترياسي الاعلى، شمال العراق.

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## LOCATION

The studied area located within Dohuk province, northern Iraq, (11) km southeastern Amadiya city, close to the Sarki village and within the coordinates  $36^{\circ} 59'30''$  north and  $43^{\circ}32' 20''$  east within the core of Gara anticline (Fig. 1), also (Fig. 2) illustrated the studied area within the core of Gara anticline.

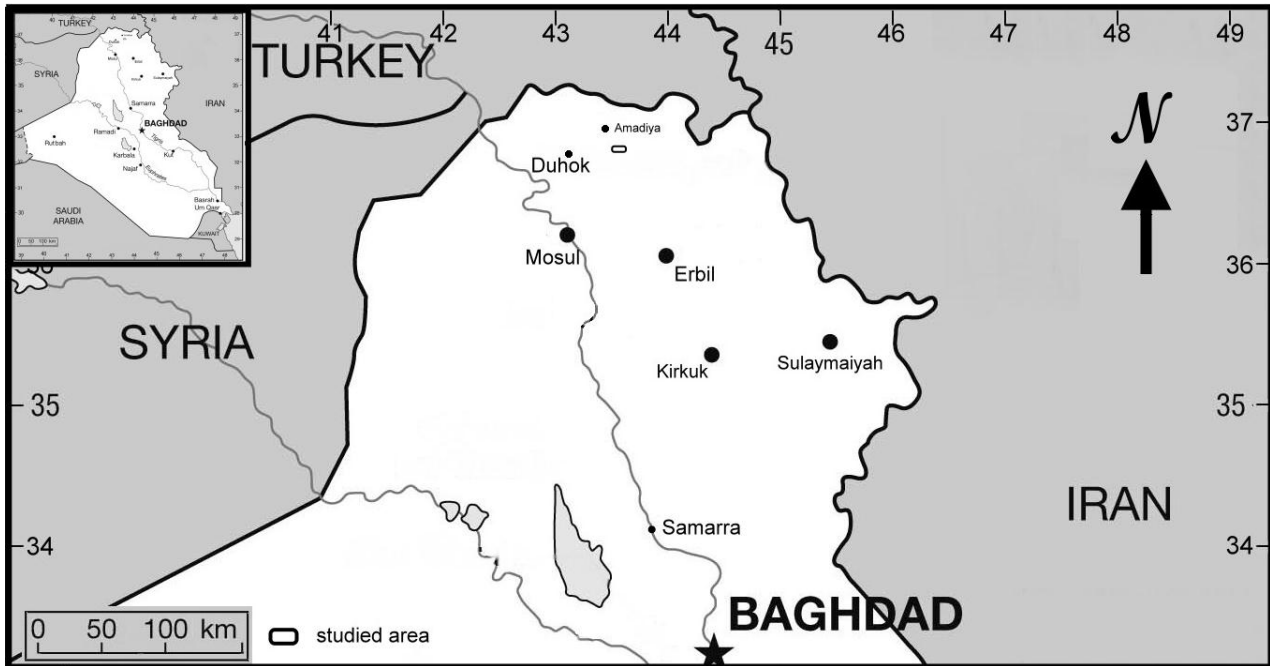


Fig. 1: Iraq Map, Showing the Location of the Studied Area.



Fig. 2: The Core of Gara Anticline, Southeast of Amadiya City, Showing the Location.

## INTRODUCTION

The lithology of the Baluti formation is identical to that of the type section in the Balambo-Tanjero of High Folded Zones (Bolton, 1958 *in* Bellen *et al.*, 1959). Samples were collected from Baluti Formation shown in (Fig. 3), the genus *Polycope* were found in samples 4 and 5.

In the present study, the formation at the studied location is about (32.4 m.) in thickness based on the measurements in the field. Lithologically the lower part consists of shale, dark grey, yellowish green marl, limestone, brownish yellow color, shale yellowish color became at the top dark grey to black color (fissility), recrystallized carbonate, dark grey color divided into (3) beds with 25cm thick, brown carbonate collapse breccias, black shale. Upper part consists massive bedded carbonate with lenses of shale, yellowish coloursome time specially at the top silty carbonate, carbonate yellowish grey color mottled by shale which disappearance at the top of carbonate beds, with shale, yellow to light grey bed with a thick of 10 to 15cm, Interbedded with shale black fissility, dark brown carbonate, to yellow color recrystallized lime. Both lower and upper boundaries of the formation are conformable and gradational (Bellen *et al.*, 1959) except in well Tharthar-1. The conformable nature of upper contact of the formation in some parts of Iraq (Ga'ara area, western Iraq) seems to be uncertain, due to the ascertained break between Triassic and Liassic , and the widespread and well known break between Triassic and Liassic in Saudi Arabia, southwestern Iran ...etc. (Buday, 1980).

The present work is part of M.Sc. Project investigating ostracode microfossil from Baluti Formation (Upper Triassic) from Amadiya section, at Geology Dept., Mosul University. All the Figured specimens are deposited at Mosul university with prefix (MUTBO) which is came from (MU =Mosul University, T = Triassic, B=Baluti Formation and O= Ostracoda ).

## PREPARATION OF SAMPLES

Sample were collected from Baluti Formation outcrop section in Amadiya area of northern Iraq, has processed the arrogance traditional practices. (24) sample has been washed. There are several different methods used by type rock, in general, to extract microfossils from the sediments, different methods were used on the basis of lithological type. The sample was first weighed and soft sediment boiled in water with some amount of Sodium Carbonate, Boiling and sieving repeated many times until clean residue was obtained. Hard sample, were heated on electric iron plate, cooked the soalcad with Kerosene, then uses the above method many times with sodium carbonate to get residue.

A soft brush was used to pick ostracode specimens the microscope binary and strongly zoom lens (25X) (40X). After that was filmed samples to make modifications to the microscope (OPTIKA, B-35POL) where the shed and multiple external lighting units and photographed samples under zoom (40X).

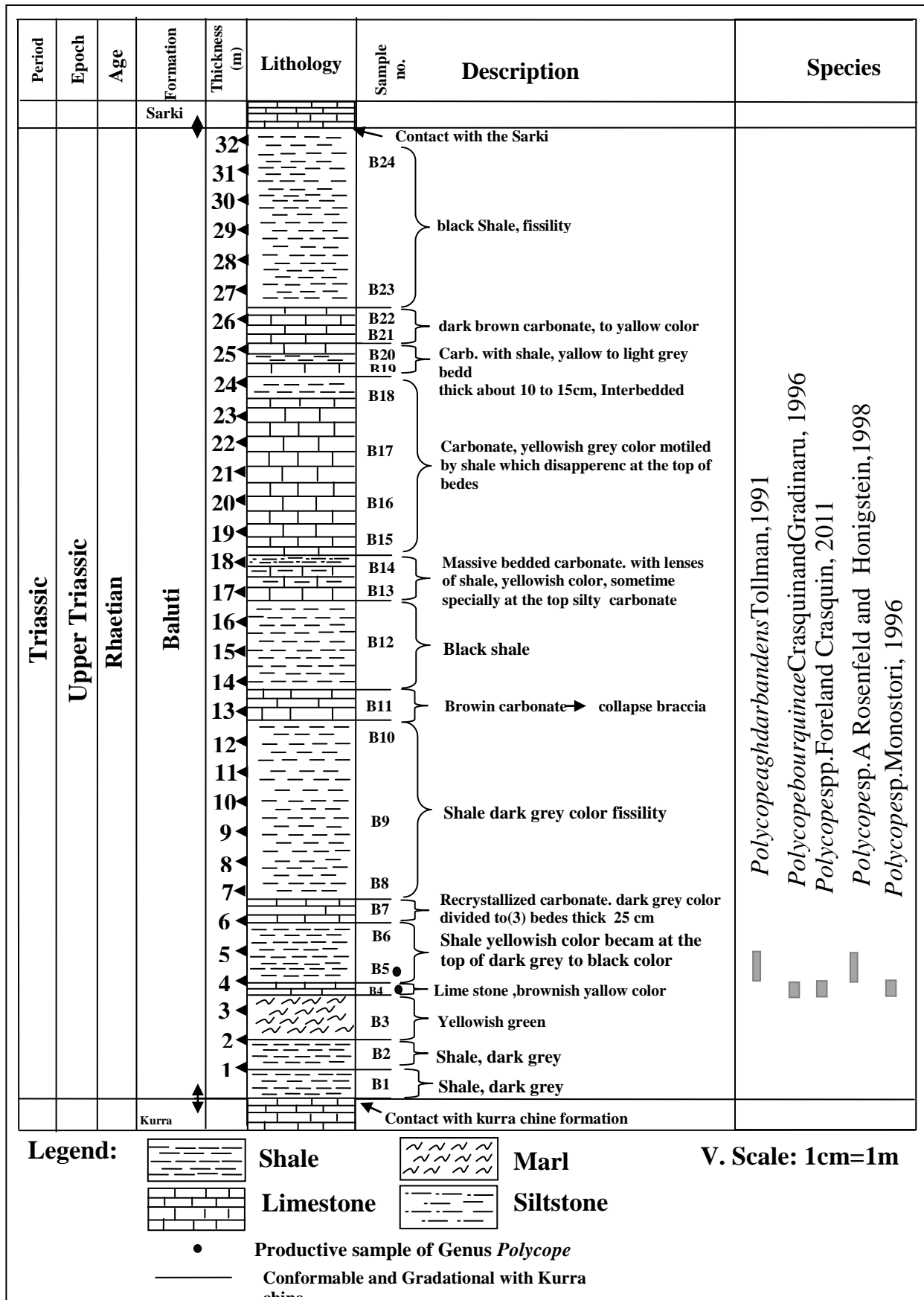


Fig. 3: Lithological Section of Baluti Formation, Northern Iraq.

## SYSTEMATIC DESCRIPTION

**Phylum** CRUSTACEA Pennant, 1777  
**Class** OSTRACODA Laterille, 1806  
**Subclass** PODOCOPA Muller, 1894  
**Order** MYODOCOPIDA Sars, 1866  
**Suborder** CLADOCOPINA Sars, 1866  
**Family** POLYCOPIDAE Sars, 1866

**Genus** *Polycope* Sars, 1866

**Type species:** *polycope orbicularis* SARS 1866, P. 122

*Polycope aghdarbandens* Tollman, 1991  
(pl.1, Fig.1)

1991 *polycope aghdarbandens* Tollman, p.197, pl.1, Figs.(10 - 12).

**Material:** one carapace.

**Occurrence:** Baluti Formation, Gara anticline, sample, No. 5.

**Dimensions (um):** Length: 600, Height: 590, L/H: 1.016, Carapace  
(RV)MUTBO1:1

**Description:** Carapace semicircular, ornamentation vinaigrette, which run anteroventrally parallel with the border of the carapace in a U-shaped form and are open posterodorsally.

**Remarks:** The Iraqi specimens identical to the species *Polycope aghdarbandens* Tollman, p.197, pl.1, Fig.(10 - 12) from Upper Ladinian, NE-Iran, but differ of shape and ornamentation.

*Polycope bourquinae* Crasquin and Gradinaru, 1996  
(Pl.1, Fig. 2)

1985 *Polycope* sp. Bunza and Kozur, p. 15, pl. II, Fig. 12.

?1993 *Polycope* sp. Mirauta, Gheorghian and Badiceanu, pl.III, Fig.17a ,b.

1996 *Polycope bourquinae* sp. Crasquin and Gradinaru, p.16, pl.1, Fig. 4 - 6

**Material:** one carapace.

**Occurrence:** Baluti Formation, Gara anticline, sample No. 4

**Dimensions (um):** Length: 400, Height: 390, L/H: 1.025, Carapace  
(RV)MUTBO1:2

**Description:** Carapace circular, surface is dotted ornamentation, carapace compressed laterally along all the margins.

**Remarks:** The Iraqi specimens identical to the species *Polycope bourquinaesp.* Crasquin and Gradinaru, p.16, pl.1, Fig 4 - 6. from Early Middle Triassic of Cimmerian north Dobrogean Orogen, Romania, but the Iraqi type differ from the Romanian type by the absence of ornamentation.

*Polycope* spp. Forel and Crasquin, 2011  
(pl.1, Fig. 3)

2011 *polycopespp.* Forel and Crasquin, p. 463, Fig. 4A

**Material :**one carapace.

**Occurrence:** Baluti Formation , Gara anticline, sample, No.4.

**Dimensions (um):**Length: 300, Height: 300, L/H: 1, Carapace (RV)MUTBO1:3

**Description:** Carapace circular, and smooth surface with generally no clue as to orientation.

**Remarks:** The Iraqi specimens completely identical with *Polycope* spp. Forel and Crasquin,2011, p.463, Fig. 4A. Lower Triassic ostracods (Crustacea) from the Meishan section, Permian - Triassic boundary GSSP (Zhejiang Province, South China)

*Polycope* sp. A Rosenfeld and Honigstein, 1998  
(Pl.1, Fig. 4)

1998 *Polycope* sp. A Rosenfeld and Honigstein, P. 84, pl. 2, Fig. 11.

**Material:** one carapace.

**Occurrence:** Baluti Formation, Gara anticline, sample, No.5.

**Dimensions(um):**Length: 400, Height: 400, L/H: 1, Carapace (RV)MUTBO1:4

**Description:** Carapace circular, ornamentation vinaigrette, pronounced all over the carapace.

**Remarks:** The Iraqi specimens identical to the species *Polycope* sp. A Rosenfeld and Honigstein, 1998, P.84, pl.2, fig.11.from Kimmeridgian of Israel, but differ of shape and Ornamentation.

*Polycope* sp. Monostori,1996  
(pl.1, Fig. 5)

1996*Polycopesp.* Monostori, p. 34, pl. 1, Fig. 1.

**Material:** one carapace.

**Occurrence:** Baluti Formation, Gara anticline, sample No. 4.

**Dimensions(um):** Length: 420, Height: 420, L/H: 1, Carapace (RV)MUTBO1:5

**Description:** Carapace semicircular, this species is generally smooth.

**Remarks:** The Iraqi specimens identical to the species *Polycope* sp. p. 34, pl. 1, Fig. 1. from Late Triassic of the Bakony Mts. (Transdanubian Central Range, Hungary), but differ of shape.

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**PLATE 1**

- 1- *Polycope aghdarbandens* Tollman, 1991. Carapace (RV)MUTBO1:1
- 2- *Polycope bourquinae* Crasquin and Gradinaru, 1996. Carapace (RV)MUTBO1:2
- 3- *Polycope* spp. Forel and Crasquin, 2011. Carapace (RV)MUTBO1:3
- 4- *Polycope* sp.A Rosenfeld and Honigstein, 1998. Carapace (RV)MUTBO1:4
- 5- *Polycope* sp. Monostori, 1996. Carapace (RV)MUTBO1:5

**PLATE 1**