

## Two New Species of Genus *Acanthocythereis* Howe of Ostracoda from Akashat Formation (Early-Late Paleocene) of Western Iraq.

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### Abstract

Two new Trachyleberid Ostracoda species of genus *Acanthocythereis* Howe, 1963 from Akashat Formation (Early-Late Paleocene) of western Iraq. *Acanthocythereis* (*Canthylocyereis*) *akashatensis* sp. nov., and *Acanthocythereis* (*Canthylocyereis*) *anahensis* sp. nov. Species of this genus are short ranging, relatively abundant and very useful stratigraphically in W. Iraq and good markers of the top of the Paleocene, because their last occurrences are at the extreme top of it.

**Keywords:** Akashat Formation, *Acanthocythereis*, Iraq, Paleocene, Ostracoda .

### Introduction

Material for this study was recovered from subsurface samples from Anah well-1, Iraq western desert area (33° 37' 30" N, 39° 50' 06" E) (Fig.1), the Paleocene is represented in Iraq by the Akashat Formation (Fig.2). Jassim and Karim (1) assigned Lower-Upper Paleocene age to Akashat Formation on the basis of the presence of *Nummulites*, *Lochartia*, *Anomalinoidea*, *Rotalia*, and *Cibicides*. These fauna are good markers with a very wide distribution. Lithologically Akashat Formation in the type Locality in Wadi Samhat, along the western rim of Ga'ara depression located (7 km) south Akashat phosphate mines consists of alteration of grey phosphrites and limestone, marly limestone and

sandy limestone (2). Previously described as Umm Er Radhuma Formation, which represents an inner-middle shelf depositional environment in tropical-subtropical condition. The Akashat Formation is overlain by the Jaddala Formation (Lower-Middle Eocene) with a conformable contact. underlain by Digma Formation (Lower Maastrichtian) unconformably.

*Acanthocythereis* has been found associated with the ostracoda genera *Alocopocythere*, *Echinocythere*, *Hermanites*, *Occultocythereis*, *Paragrenocythereis*, *Phalcoocythere* and *Xestoleberis*.

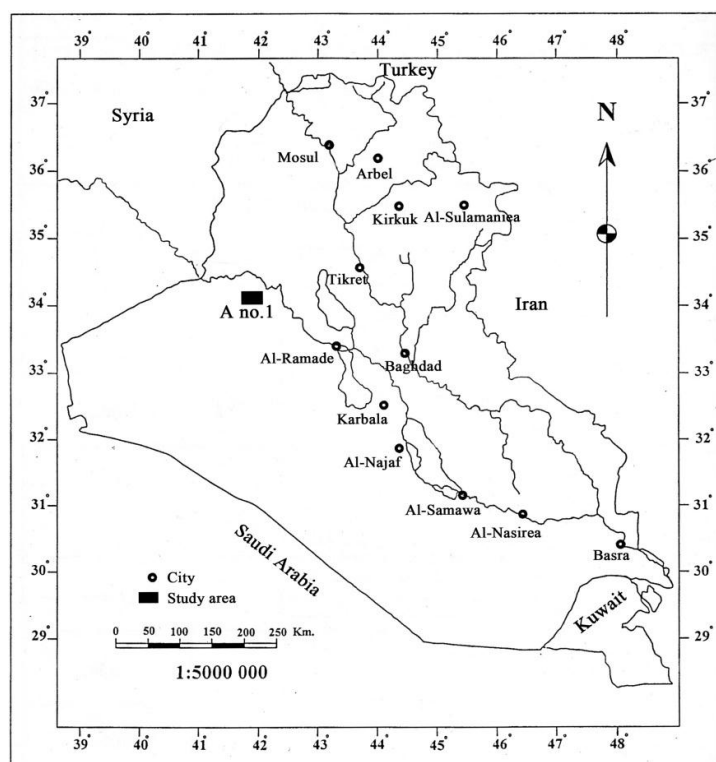


Fig.1 Location Map.

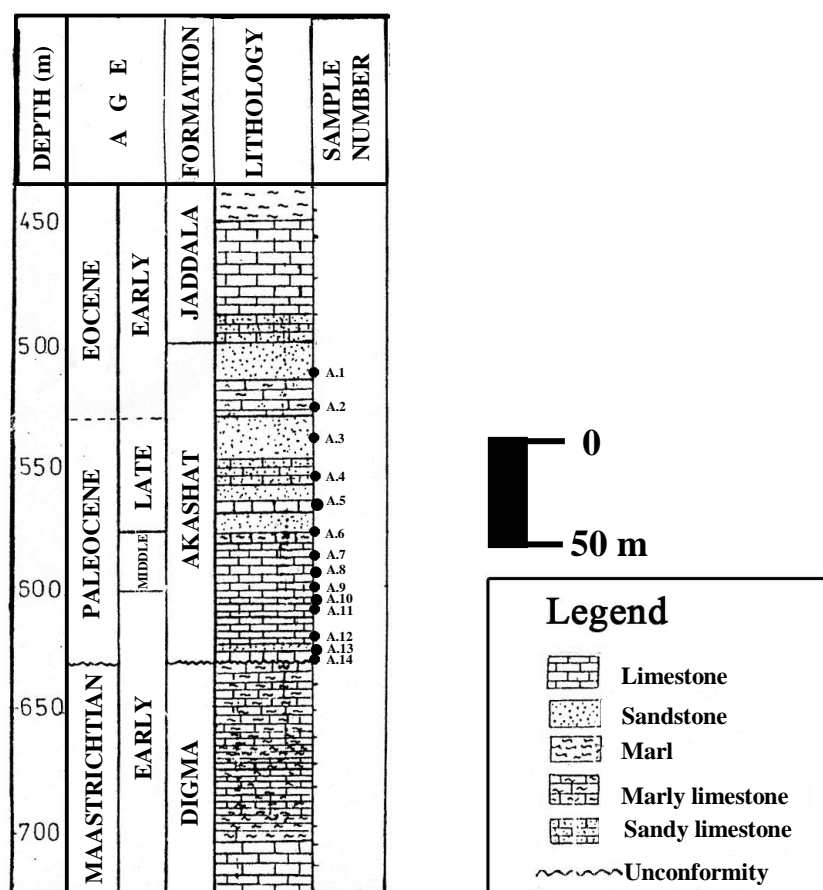


Fig.2 Lithological Section of Akashat Formation (Lower-Upper Paleocene) Western Iraq in Anah well – 1.

These genera inhabited primarily shallow seas (3). Specimens prefixed by the letter Mo.T.A.(1 – 14) are deposited in the collection of the Geology Department, Mo. : Mosul University, T. : Tertiary Collection, A. : Akashat Formation sample number. L. : Length, H. : height, W. : Width.

#### Systematic paleontology

The classification of ostracoda followed is that of (4)(5)(6).

**Phylum** : Crustacea Pennant, 1773  
**Class** : Ostracoda Latrielle, 1806  
**Order** : Podocopida Muller, 1894  
**Suborder** : Podocopina Sars, 1866  
**Superfamily** : Cytheracea Baird, 1850  
**Family** : Trachyleberididae Sylvester Bradley, 1948.  
**Subfamily** : Trachyleberidinae Sylvester-Bradley, 1948.  
**Genus** : *Acanthocythereis* Howe, 1963.  
**Type species** : *Acanthocythereis araneosa* Howe, 1963.

**Subgenus** : *Acanthocythereis* (*Canthylocyereis*) Al-Sheikhly, 1992.

*Acanthocythereis* (C.) *akashatensis* sp. nov.  
 Pl.1, Figs.(1 – 5).

**Derivation of Name:** From the location of type locality in western desert of Iraq.

**Diagnosis:** *Acanthocythereis* species with height anterior and posterior rims, ventrolateral ridge well – developed sharp and ponticulated (blade-like) anteriorly and alae upward terminated posteriorly in heavy tubercle, subcentral tubercle prominent with a small swelling below and slightly anterior. Surface ornamentation reticulate with superimposed pustules small nodes scattered posteriorly.

**Holotype:** A female carapace Mo.T.A. 14.

**Paratype:** Four specimens Mo.T.A.12-14.

**Type locality and Horizon:** Akashat Formation (Lower-Upper Paleocene), Iraq western desert area.

**Material:** (34) Carapace and (18) Valve.

**Description:** Medium-sized carapace elongate sub rectangular in lateral view, greatest height through the anterior cardinal angle, greatest length at mid – height. Anterior margin obliquely rounded, decorated with double row of nodes, the inner one starting below the eye tubercle with small nodes which coincide and form a thick anterior marginal rim which becomes a thin along the ventral margin and terminates posteriorly with small node. The outer one forms the marginal flange with fine marginal denticulations in the male valve, posterior margin sub triangular decorate with small nodes, in the female the posterior end is concave in upper part slopping down in lower part and decorate with small nodes. Dorsal margin slightly straight, jagged with small nodes and shallow

furrows in between, the distinctive one behind eye tubercle and other behind subcentral tubercle. Anterior and posterior cardinal angles pronounced, ventral margin straight in male, concave anteriorly, curving upwards posteriorly in the female. Lateral surface reticulate with superimposed pustules (small nodes) which scattered posteriorly but anteriorly formed radial ribs. Ventral ridge well developed sharp and pointiculated (blade-like) anteriorly and alate upward posteriorly which terminating with tubercle in female, but decorated by series nodes in male, dorsal ridge visible ended posteriorly with short curved horn-like ridge. Eye tubercle distinct round. Subcentral tubercle prominent with a small swelling below. Left valve larger than right valve, overlapping it more distinctly along the posterior and ventral margins, the sexes are easily distinguished, the males being more elongate, narrower and less high than the presumed females. The sexual dimorphism is well pronounced in dorsal view.

**Dimensions of figured species (mm):**

|                               |    |     |     |      |
|-------------------------------|----|-----|-----|------|
| Holotype, female carapace     |    |     |     |      |
| Mo.T.A.14 (pl.1, fig.1)       | 42 | .29 | .29 | 1.44 |
| Paratype, male carapace       |    |     |     |      |
| Mo.T. A.14 (pl.1, fig.2)      | 43 | .26 | .24 | 1.65 |
| Paratype, female carapace     |    |     |     |      |
| Mo.T. A.14 (pl.1, fig.3)      | 41 | .28 | .29 | 1.46 |
| Paratype, female dorsal view. |    |     |     |      |
| Mo.T. A.14 (pl.1, fig.4)      | 42 | .29 | .28 | 1.44 |
| Paratype, male dorsal view.   |    |     |     |      |
| Mo.T. A.14 (pl.1, fig.5)      | 43 | .27 | .23 | 1.60 |

**Remarks:** *Acanthocythereis* (C.) *akashatensis* sp. nov. is easily to be distinguished from *Acanthocythereis dohokensis* (7) from northern Iraq in the details of ornamentation, notably in its shaped tubercles, the conjunctive spines, indistinct subcentral tubercle and more swelling ventrally with faint ventral ridge. *A. denticulate* Esker which recorded in (8) from Maastrichtian-Middle Eocene of Egypt; it differs in having two prominent posterodorsal tubercle, differs in shape of posteroventral and in surface ornamentation. *Acanthocythereis* (*Canthocythereis*) *bolispinosa* (9) from Upper Paleocene – Lower Eocene in Middle East, can be easily distinguished from the present species, by having large size, less developed ventral ridge and more distinct subcentral tubercle, without horn-like dorsal ridge and reticulation with sharp spines.

**Distribution:** Known from the Paleocene, Akashat Formation, Iraq western desert area.

*Acanthocythereis* (C.) *anahensis* sp. nov.

Pl.1, Figs. (6 – 9).

**Derivation of name:** From type locality in Anah village, Iraq western desert area.

**Diagnosis:** A tumid small size of the genus *Acanthocythereis*, with rounded prominent eye tubercle strongly standing out from the surface and prominent, ovate subcentral tubercle. Surface ornamentation consists of reticulation with superimposed inflation nodes irregular scattered, ventral inflation. A well developed posterior cardinal process, mid dorsal tubercles is rather more strongly developed than the previous species.

**Holotype:** A female carapace Mo.T.A.2.

**Paratype:** Three specimens Mo.T.A.2, 6.

**Type Locality:** Akashat Formation (Early-Late Paleocene), Iraq western desert area.

**Material:** Twenty specimens

**Description:** Carapace elongate, subrectangular in side view, greatest height through the anterior cardinal angle. Dorsal margin slightly straight covered with small nodes, ventral margin slightly convex, anterior margin obliquely rounded decorated with a double row of small nodes and denticles. Anterior marginal rim distinct, posterior margin subtriangular to slightly rounded ventrally and decorated with nodes, surface ornamentation consist of reticulate superimposed with inflation nodes, irregular scattered, ventral ridge alate upward, curved posteriorly and joined posterodorsal process which not well developed. dorsal ridge, decorated with distinctive nodes which developed laterally. Sexual dimorphism pronounced males more elongate and narrower than the presumed females, eye tubercle rounded, strongly standing out from the surface,

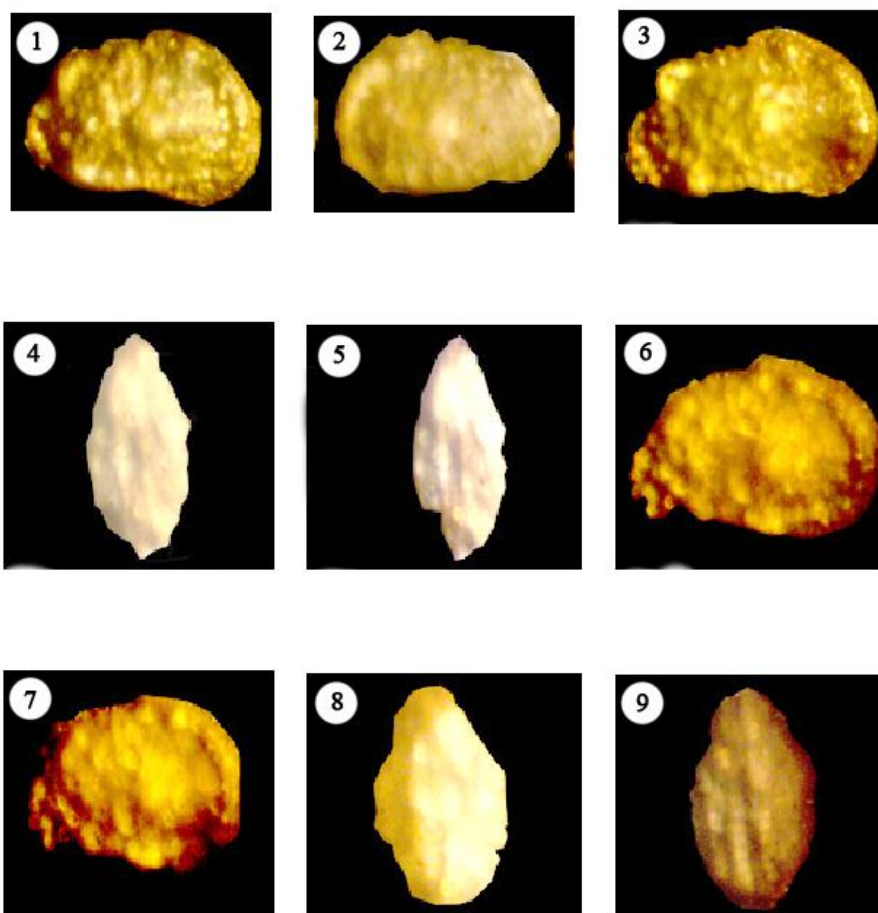
**Dimensions of figured species (mm):**

|                              |     |     |     |      |
|------------------------------|-----|-----|-----|------|
| Holotype, female carapace    |     |     |     |      |
| Mo.T.A.2 (pl.1, figs.6)      | .45 | .29 | .25 | 1.55 |
| Holotype, male carapace      |     |     |     |      |
| Mo.T.A.2 (pl.1, figs.7)      | .48 | .29 | .26 | 1.66 |
| Paratype, female dorsal view |     |     |     |      |
| Mo.T.A.6 (pl.1, fig.8)       | .45 | .29 | .25 | 1.55 |
| Paratype, male carapace      |     |     |     |      |
| Mo.T.A.6 (pl.1, fig.9)       | .47 | .28 | .26 | 1.67 |

**Remark:** *Acanthocythereis* (C.) *anahensis* differs from *A. (C.) akashatensis* sp. nov. by having well developed eye tubercle, subcentral tubercle, more distinct posterior cardinal angle and tumid carapace which all margins beautifully decorated with double row of papillae. *A. meslei meslei* Donze and Oertli which reported in (10) from Maastrichtian – Lower Eocene of Egypt, it differs in the posterodorsal process less well developed and low marginal rim also straight short ventral ridge.

**Distribution:** known from the Paleocene, Iraq western desert area.

Plate-1

**Explanation :**

Figs. (1-5) *Acanthocythereis (C.) akashatensis* sp. nov.

1-Holotype, a female carapace from Right, Mo. T.A. 14, x.190.

2-Paratype, a male carapace from left, Mo.T.A.14, x.192.

3-Paratype, a female carapace from right, Mo.T.A.14, x. 192.

4-Paratype, a female carapace dorsal view, Mo. T.A. 14, x.194.

5-Paratype, a male corapace dorsal view Mo.T.A.14, x.196.

Figs. (6-9) *Acanthocythereis (C.) anahensis* sp. nov.

6-Holotype, a female carapace from right, Mo.T.A.2, x. 202.

7-Paratype, a male carapace from right Mo.T.A.2, x. 204.

8-Paratype, a female carapace dorsal view, Mo.T.A.6, x. 200.

9-Paratype, a male carapace dorsal view, Mo.T.A.6, x. 200.

**References**

1- Jassim, S.Z., Karim, S.A., Basi, M.A., Al-Mubarak, M. and Munir, S., 1984. Final report on the regional geological survey of Froq. Vol(3). Stratigraphy, GEOSURV, int rep. no. 1447.

2- Al-Bassam, K.S., Karim, S.A., Hassan Saeed, K.M., Yakta, S. and Salman, M., 1990. Report on geological survey of Upper Cretaceous – Lower Tertiary Phosphorite bearing sequence, western Desert, Iraq. GEOSURV, int. rep. no.2008.

3- Morkhoven, F.P.C.M. Van, 1963. Post-Paleozoic ostracoda their morphology, taxonomy and economic. V.II, Generic descriptions: New York, Elsevier Pub.Co.487p.

4- Hartmann, G., and Puri, H.s., 1974. Summary Neontological and palaeontological classification of ostracoda. Mitt Homburg.Zool. .Muss. inst. 70, PP.7-73.

5- Al-Furaih, A.A., 1980. Upper Cretaceous and Lower Tertiary Ostracoda (Superfamily) Cytheracea from Saudi Arabia. publ. of Riyadh univ. 211.

6- Ahmed, M., Neale, J.W, and Siddiqui, Q.A., 1991. Tertiary Ostracoda from the linidi area, Tanzania, Bull. British Muss. Geol. London, 46(2): 175- 275.

7- Khalaf, S.K., 1982. On *Acanthocythereis dohokensis* sp. nov. Stero-Atlas of Ostracoda shells 9(10): 59-62.

- 8- Shahin, A., 2005. Maastrichtian to Middle Eocene Ostracodes from Sinai, Egypt: systematics, biostratigraphy and Paleobiogeography. *Revue de Paleobiologie*, 24(2): 749-779.
- 9- Al-Sheikhly, S.S., 1992. The Genus *Acanthocythereis* R.C. Howe, 1963 (Ostracoda) from

the Upper Cretaceous –Paleocene of the Middle East; Iraq; *Geol. J.* Vol.25, No.1, PP.42-64.

- 10- Morsi, A.M., Faris, M., Zalat, A. and Salem, F.M., 2008. Maastrichtian – Early Eocene Ostracodes from west-central Sinai, Egypt taxonomi, biostratigraphy, Paleocology and Paleobiogeography. *Revue de Paleobiologie*, Geneve, 27(1): 159-189.

## النوعين الجديدين لجنس *Acanthocythereis* Howe, 1963 من الأوستراكودا ضمن تكوين عكاشات (الباليوسين المبكر – المتأخر)، غرب العراق.

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### الملخص

في هذا البحث تم دراسة نوعين جديدين تابعين للجنس *Acanthocythereis* Howe, 1963 من تكوين عكاشات (الباليوسين المبكر – المتأخر) ، غرب العراق، حيث اعتبرا مؤشراً جيداً على الجزء الاعلى للباليوسين في العراق وهما *Acanthocythereis* (*Canthylocyereis*) *akashatensis* sp. nov., and *Acanthocythereis* (*Canthylocyereis*) *anahensis* sp. nov.