

REWORKED PALEOZOIC ACRITARCHS AS PROVENANCE INDICATORS OF BUTMAH FORMATION (EARLY JURASSIC) NORTH IRAQ.

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Abstract

Profuse and well preserved Paleozoic acritarch assemblage were recovered from subsurface lower Jurassic sediments from oil exploration well Makhul_2 Northern Iraq.

Acritarch assemblages have been recorded from Butmah Formation (early Jurassic). The recovered acritarch are originally come from Ordovician and Silurian sediments Landmass, situated nearby during complete erosion, Later the fluctuation accompanied were all have been transported and deposited in lower Jurassic sediments.

1. Introduction

The phenomenon of reworked palynomorphs from, older sediments being re bedded in to younger sediments has been noticed by many palynologists since fifties (1,2,3).

The reworked palynomorphs provide away of identifying the province of sediments. Five samples were taken at depth (8048ft) from Butmah Formation of Makhul_2 oil well (fig-1).

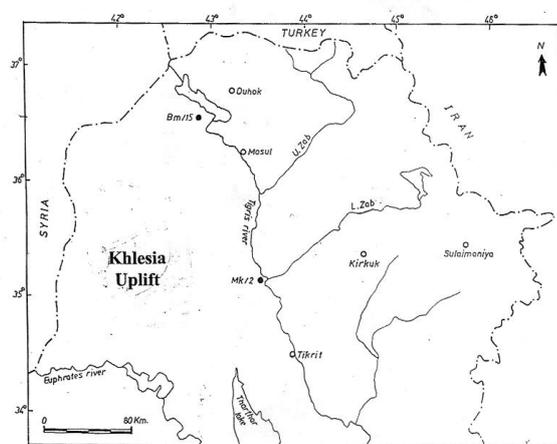


Fig.1. Location map of the studied area

The samples were palynologically processed to dissolve carbonates by (HCL) , and (HF) to dissolve silicates and complete the standard palynological technique to extract palynomorphs.

The preserved palynomorphs in the sample contain an early Jurassic assemblage together with paleozoic assemblages, which have been used to detect the provenance of sediments

2. Reworked assemblages and source area;

The reworked Paleozoic assemblages recovered in the palynological processing of lower Jurassic sediment of the upper part of Butmah Formation (core sample (no.33) at depth (8048)ft with encountered drilled depth (7756-9522 ft) (2364-2903m) of Makhul-2) Oil well northern Iraq, they are:

Onondagella deunffi (Pl.1.Fig.1),
Baltisphaeridium longispinosum (Pl.1.Fig.2),
Eupoikelofusa striatifer (Pl.1.Fig.3),
Acanthodiacrodium sp., (Pl.1.Fig.4),
leiofusea sp., (Pl.1.Fig.5),
Baltisphaeridium filosum (Pl.2.Fig.1)
Verychium lairdi (Pl.2.Fig.2), *Verychium subglobosum* (Pl.2.Fig.3), *Verychium setosapeli* (Pl.2.Fig.4), and unknown Acritarchs (Pl.2.Fig.5).

The previous stratigraphic rang of the assemblages above encountered in other part of world indicate that the age of the assemblages is (Ordovician-Silurian) (4,5,6)

3. Paleoenvironmental aspects and Acritarchs provinces

The recovered reworked acritarchs from Paleozoic deposits give an idea about the Paleoenvironment deposition of the sediment which were marginal marine characters, (Fig.2) most of the acritarchs being short spine from (pl.1,2) characteristic of shallow turbulent water.

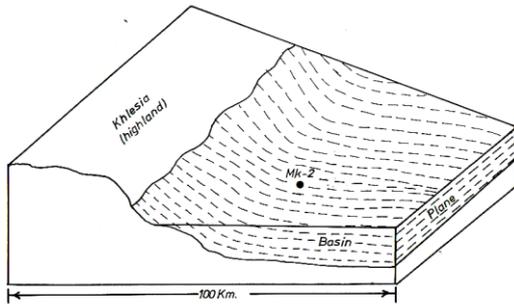


Fig. 2. Block diagram illustrate depositional environment of Buqma formation -

Paleoenvironment

3.1 Khabour quartzite-Shale Formation

The Khabour quartzite-Shale Formation is the oldest known sedimentary rock in Iraq.it is outcropped in northern thrust zone area and consist entirely of silica clastic, comprising thin bedded,fine grained sandstone,quartzite gray wackes and silty micaceous Shale's (7) unpublished report in (8)

The Khabour Formation has been dated as Ordovician (liandeilo) in the upper part and probably Ordovician throughout by (7),Ordovician (9), and Early-Late Ordovician (10). The present of *Veryhachium Lairdi* in this study refers obviously to Ordovician period.

In Khleisia-1, the lower most 1500m. of the section are assigned to the middle Ordovician and are attributed to the upper part of Khabour Formation (11,12)

3.2 Akkas Formation

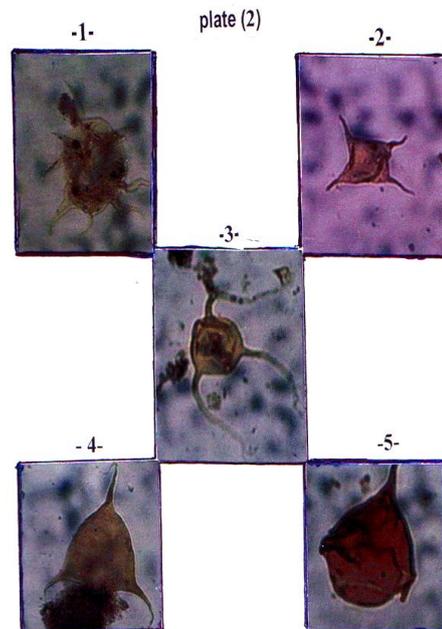
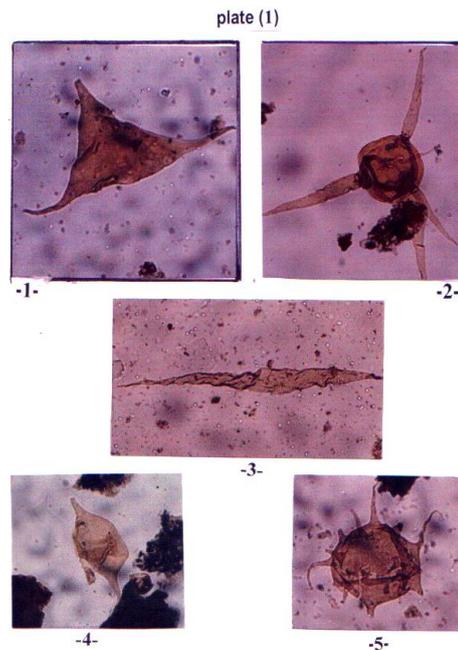
In Iraq, Silurian rock are not known in outcrops. However they have been encountered in several bore holes in Western

Desert (12), directly overlying the Ordovician Khabour Formation, this interval is formally known as the Akkas Formation (13). and the Silurian sequence was deposited over the whole of Western and South Western Iraq

4. Results and Discussions

Reworked paleozoic marine assemblages (Acriarchs) have been recovered in this study.

The assemblage are of Ordovician and Silurian palaeobiogeographic affinity occur together with in situ microptoplankton which indicates that there was apaleo-high of paleozoic sediments outcropped in the western part of (Early Jurassic basin).



5. References

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