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(Rhizocorallium) (Dome)
(Birdseye-fenestral porosity)

Stromatolitic Horizons in the Mulussa Formation Western Desert, Iraq

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ABSTRACT

Widespread occurrence of stromatolitic horizons is documented in the middle part of Mulussa Formation, of the Gaara depression western of Iraq. These stromatolitic horizons are associated with intertidal channels, fenestral (birdseye) porosity, trace fossils of Rhizocorallium, as well as chert nodules with varnished evaporites.

The main petrographical constituent appeared to be calcite with radial pattern enclosed between dark algal walls, later replacement by dolomite and silica is common.

Based on the sedimentary attributes and characteristic features of these stromatolitic horizons and their comparison with recent and ancient analogous, an intertidal-lagoonal environment is inferred during their deposition.

– (A-1)
 .() (Carnian – Norian)
 (Buday and Hack, (Upper Triassic–Middle Jurassic) –
 (Bellen .1980)
 .(Buday, 1973) .et al., 1959)

(Convolute bedding)

(Cross bedding)

.(1983)

(Fenestral porosity)

(Chert nodules)

(Rizhacorallium)

.(C B-1)

–

.(Coimbra, 2000)

(20 cm)

.....

.

-B

-A :1

. -D -C :1

.....

.(A-1) (Erosional contact)

(14)

.(B-1)

(Rizhacorallium)

(Chert nodules)

.(C B-1)

.(B-1)

(Relic structures)

(Birds eye)

)

(Rosette molds)

(D-1

(50 cm)

(Intrasparrudite)

.(E-1) (Oncolite)

.(E-2) (Fenestral)

.(C-2)

(A-1)

(B A-2) (Domes)

.(A-2)

(Undulated)

(Planner)

(Blue-green algae) -

.(C-1)

-A :2

-B

.....

(D-1)

(Radial fibrous cement)

(2001)

(Bathrust, 1975)

(Maliva, 2000)

(De wet et al., 1999)

(Microbial)

(Anoxic)

(Oncolite)

)

(Biolumination)

.(F-1

(Periodic

calcification)

.(D-1)

: -1

(0.02 – 0.06)

.(F-1)

(Cellular structure)

(Diagenitic grains)

.(Wolf, 1965)

.(A-2) (1983)

(Pellets)

: -2

.(B-2)

.(D, B-2) (B-1)

(Buday and Hack, 1980)

(Concentric lamination)

.(Hesse, 1987)

(pH)

.(Cotter, 1966)

(Hypersaline)

(Peterson and Von der Brosh, 1965)

(Krauskopf, 1975)

.(Graf, 1960)

.....

.(C-2)

(Shinn, 1973)

(lime mud)

(Fenestral porosity)

(E-2)

(Shinn, 1968)

(Intrasparraudite)

(Trace fossils)

.(Logan et al., 1964)

(Rhizocorallium)

.(F-2) (Frey, 1975)

(Soja, 2000)

(Planar algal mats)

.(Logan et al., 1964)

(Macintyre, 2000)

.(Lagoon)

◆

◆

◆

◆

()

.2001

126

.1983

141

- Bellen, R.C., Dunnington, H.V., Wetzel, R and Morton, D.M., 1959. Lexique stratigraphic international, Vol.3.Asie.Fascicula, 10a-Iraq, paris, 333p.
- Buday, T., 1973. Regional Geology of Iraq. Unpublished report, .SOM .Library, Baghdad.
- Buday, T. and Hack, J., 1980. The regional survey of the western desert of Iraq. Unpublished report, SOM Library, Baghdad.
- Coimbra, M.M., 2000. Radiocarbon measurements of stromatolite heads and crusts at the Salgada lagoon, Rio de Janerio state, Brazil, Nuclear instruments and methods in physics research section B-Beam interaction with materials atoms. Vol. 172, pp.592-596.
- Cotter, E.E., 1966. Limestone diagenesis and dolomitization in Mississippian carbonate banks in Montana. Jour. Sed. Petrology, Vol.36. pp.764-774.
- De Wet, C.B., Dickson, J.A., Wood, R. A., Gaswirth, S.B. and Frey, H. M., 1999. A new type of shelf margin deposit ridge-microbial sheets and unconsolidated grainstone riddled with meter-scale cavities. Sedimentary Geology, Vol.138. pp.13-21.
- Graf, D.L., 1960. Geochemistry of carbonate sediments and sedimentary carbonate rocks. Illinois state. Geol. Survey Circe 301, 71p.
- Frey, R.W., 1975. The Study of Trace Fossils, a synthesis, principles, problems and procedures in Ichnology. Springer-Verlag, New York. 562p.
- Hesse, R., 1987. Selective and reversible carbonate bearing turbidite of the eastern Alps. Sedimentology, Vol.34. pp.1055-1077.
- Krauskopf. K.B., 1975. Introduction to Geochemistry. New York. McGraw-Hill, 617p.
- Logan, R.W., Rezak, R. and Ginsburg, R.N., 1964. Classification and environmental significance of algal stromatolites. J. Geology, Vol.72, pp.68-83.
- Macintyre, J.G., 2000. The role of endolithic ganobacteria in the formation of lithified laminae in Bahamian stromatolites. Sedimentology, Vol.47. pp.915-921.
- Maliva, R.G., 2000. Unusual calcite stromatolites and pisoids from a land fill leachate collection system. J. Geology, Vol. 28, pp. 931-934..
- Peterson, M.N.A. and Von der Broch, C. C., 1965. Chert: modern inorganic deposition in a carbonate precipitating locality. Science. N. Y., Vol.149, pp.1501-1503.
- Shinn, E.A., 1968. Practical significance of birdseye structures in carbonate rocks. Jour. Sed. Petrology, Vol.38, pp.215-223.
- Shinn, E.A., 1973. Carbonate coastal accretion in an area of longshore transport NE Qatar, Arabian Gulf, In Purser B. H. (ed). The Persian Gulf-Holocene Carbonate Sedimentation and Diagenesis in a Shallow Epicontinental Sea. Heidelberg, Berlin, Springer-Verlag. Pub. Co., pp. 179-191
- Soja, C.M. 2000. Development and decline of a Silurian stromatolite reef complex. Glacier Bay National park. Alaska, Palaios, Vol. 15, pp.273-292.
- Wolf, K.H., 1965. Petrogenesis and paleo-environment of Devonian algal limestones of New South Wales. Sedimentology, Vol.4 pp.113-178.

(1)

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(2)