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:
Globorotalia (A.) bullbrooki Zone (P.10).
Globorotalia (Morozovella) subbotinae subbotinae Zone (P.7).
Globorotalia (Morozovella) velascoensis Zone (P.5&6).
Globorotalia (Globorotalia) pseudomenardii Zone (P.4).

Biostratigraphy of Planktonic Foraminifera in Aaliji and Jaddala Formations From East Baghdad Well No.2 , Middle Iraq

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ABSTRACT

Planktonic foraminifera are studied from Aaliji and Jaddala Formations in East Baghdad Well No.2 between the depth interval 1770-1900 m. Four biostratigraphic zones are recognized in these formations:

Globorotalia (A.) bullbrooki Zone (P.10).
Globorotalia (Morozovella) subbotinae subbotinae Zone (P.7).
Globorotalia (Morozovella) velascoensis Zone (P.5and6).
Globorotalia (Globorotalia) pseudomenardii Zone (P.4).

The results of this study are compared with the work of others inside and outside Iraq. The age of Aaliji in the said well is Late Paleocene - Early Eocene and that of Jaddala is Early – Middle Eocene.

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; (Ghafor,1988) ; (Kassab et al., 1986) ; (Al-Sinjery,1984)
(Abdo,1994) ; () ; (Rafo,1989) ; (Ismail,1989)

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(Bolli,1957a,c,1966;Stainforth et al.,1975;Blow,1979;Toumarkin and Luterbacher,1985).

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-Globorotalia(Globorotalia)pseudomenardii Zone (P.4):

Grt. (Grt.)pseudomenardii Bolli :

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.Lower Late Paleocene (P.4) :

(P.) :

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(Bolli,1957a) :

; Berggren,1969, 1971-1978)

.(Toumarkine and Luterbacher,1985; Blow , 1979;Salaj et al . , 1976

Grt.(Grt.) pseudomenardii (Blow, 1979)

. *Muricoglobigerina sold.soldadoensis* (Bronnimann)

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Globorotalia (Grt.) pseudomenardii Bolli ; *Grt. (M.) an. angulata* (White) ;
Grt. (M.) an.conicotruncata Subbotina ; *Grt. (M.) ae.aequa* Cushman and Renz;
Grt. (M.) acuta Toulmin; *Grt. (M.) velascoensis* (Cushman); *Grt. (A.) praeoequa* Blow;
Grt. (A.) c.convexa Subbotina; *Grt. (A.) triplex*(Subbotina); *Grt.(A.) irrorata* Loeblich
and Tappan; *Grt.(A.)aca.acarinata* (Subbotina); *Grt. (Tu.)p.pusilla* Bolli; *Grt.(Tu.)*
pseudoimitatsa Blow; *Grt.(Tu.) chapmani* Parr; *Subbotina velascoensis* (Cushman);
S.t.triloculiniodes (Plummer), *S.t.triangularis* (White).

2-Globorotalia (Morozovella) velascoensis Zone (P.5 and 6):

. *Grt. (M.)velascoensis* (Cushman) :

.Late Upper Paleocene (P.5 and 6) :

Grt.(Grt.) pseudomenardii Bolli (P. 5) :

.(P. 5 and 6)

. (1875-1840) () :

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Grt.(Grt.)pseudomenardii Bolli (Bolli,1957a,1966)

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(El-Naggar,1966;El-Naggar and Ashour,1983)

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2-*Grt.aequa/Grt.esnaensis* subzone.
1-*Grt.pseudomenardii* subzone.

(Berggren et al.,1995)

2-*A.sibaiyaensis /M.velascoensis* subzone.
1-*Luterbacheria pseudomenardii –A.sibaiyaensis* subzone.

" (Kassab,1978)

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2-*Grt.aequa / esnaensis* subzone.
1- *Grt.pseudomenardii* subzone.

Grt.(M.) velascoensis Zone

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Globorotalia (M.) velascoensis (Cushman);*Grt. (M.) v.acuta* Toulmin; *Grt. (M.) v.parva*
(Rey); *Grt. (M.) o.occlusa* Loeblich and Tappan ; *Grt. (M.) ae.aequa* Cushman and
Renz; *Grt. (M.) acuta* Toulmin;*Grt.(A.) c.convexa* Subbotina;*Grt.(M.) ang.angulata*
(White);*Grt.(M.) an.conicotruncata* Subbotina; *Grt.(M.) marginodentata* Subbotina;
Grt.(M.) f.gracilis Bolli; *Grt.(M.) quetra* (Bolli);*Grt. (A.) acar. acarinata* (Subbotina);

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:(Blow, 1979)

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Gr. (A.) irrorata Loeblich and Tappan; *Gr.(A.) pseudotopilensis* (Subbotina);
Mu. s.soldadoensis (Bronnimann);*Gr.(A.)primitiva*(Finlay);*Gr.(A.)triplex*(Subbotina);
Gr.(Tu.)linaperta(Finlay);*S.t. triloculinoides* (Plummer); *S.velascoensis* (Cushman).

3-Globorotalia (Morozovella) subbotinae subbotinae Zone (P.7):

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. *G rt. (M.) s.subbotinae* Morozova

.Early Lower Eocene (P.7) :

(P.7) :

Gr. (M.) s. subbotinae Morozova *Gr. (M.) velascoensis* (Cushman)

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Gr. (M.) aragonensis Nuttal, *Mu. senni* Beckmann and *Gr. (Tu.) centralis* . (Cushman and Bermudez)

. (-) () :

Gr.(A.) rex :

(Bolli,1957a,1966)

Gr.rex Martin ;*Gr.subbotinae* Morozova

(Blow, 1979,pp.1080-1019)

(Morozova,1939) *Gr.subbotinae* Morozova

Grt.subbotinae

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Globorotalia (M.)s.subbotinae Morozova; *Gr. (M.) marginodentata* Subbotina;
Gr. (M.) ae.aequa Cushman and Renz; *Gr-(M.)acuta* Toulmin; *Gr. (M.)o.occlusa*
Loeblich and Tappan; *Gr. (M.) velascoensis parva* Rey; *Gr. (M.)lensiformis* Subbotina ;
Gr. (M.) quetra (Bolli); *Gr. (A.)pseudotopilensis* (Subbotina); (*Mu.*) *s.soldadoensis*
(Bronnimann) ; *Gr. (A.)c. convexa* Subbotina; *Gr. (Grt.) pseudocitula* (Glaessner) ;
Gr. (A.) w.wilcoxensis Cushman and Poton; *Gr. (A.)primitiva* (Finlay);
Gr. (A.) b. broedermanni Cushman and Bermudez ; *Gr.(A.)pentacamerata* Subbotina;
Pseudohastigerina wilcoxensis (Cushman and Ponton); *Subbotina linaperta*(Finlay);
S.inaequispira (Subbotina); *Globigerina collactea* (Finlay).

4- Globorotalia (A.) bullbrookii Zone (P.10):

. *Gr. (A.) bullbrookii*(Bolli) :

.Early Middle Eocene (P.10) :

Grt.(A.) bullbrooki Bolli :

Gls.kugleri Bolli

(-) () :

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(Postuma ,1971;Al-Hashimi and Amer,1985)

; Stainforth et al., 1975 ; Bolli,1957b) : *Hantkenina*

.(Molina et al .,1996 ; Toumarkine and Luterbacher, 1985

Hantkenina

Grt.(A.) bullbrooki

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Globorotalia (A.)bullbrooki Bolli;*Grt.(A.)spinulo inflata*(Bandy);*Grt.(A.)collactea* Finlay; *Grt.(A.)b.broedermanni* Cushman and Bermudez; *Grt.(Tu.)centralis* Cushman and Bermudez *Grt.(M.)s. spinulosa* (Cushman); *Grt.(M.) aragonensis* Nuttall; *Grt. (Trunc.) t.topilensis*(Cushman).

Subbotina f. frontosa (Subbotina) ; *S.inaequispira* (Subbotina); *S. linaperta* (Finlay);*S.f.boweri*(Bolli);*Globigerinita taroubaensis* (Bronnimann);

Ggt.turgida(Finlay);*Gg.lozanoi* Colom; *Pseudohastigerina micra*(Cole); *Gg.hagni* Gohrbandt ;*Muricoglobigerina senni.* (Beckmann).

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- AL-Hashimi, H.A.J .and Amer, R.M., .Tertiary microfacies of Iraq. Direct. General. Geol.Surv. Min . Invest.Publ.Baghdad, 56p,156 pls.
- AL-Sinjery, A. S., 1984. Biostratigraphy of Jaddala Formation in Sinjar area. Jour.Geol.Soc.,17: pp.1-248.
- Arenillas,I.andMolina,E.,1996. Biostratigrafia Y evolucion de Las,asoc-iaciones de foraminiferos planctonicos del Transito Paleoceno-Eoceno en Alamedila (Cordilleras Beticas) Revista Espanola DE Micr.,XXVIII(1): pp.75-96.
- Blow,W.H., .The Cainozoic Globigerinida,V.I-III,Brill, E.J. , Leiden Brill, The Netherlands.,1413p.
- Berggren,W.A., . Paleogene biostratigraphy and planktonic foraminifera of Northern Europe.In Bronnimann,P.and Renz,H.H. (eds.) Proceed.1st. Intern. Conf. Plank. Microfoss., 1: pp.121-160.E.J.Brill.Leiden, Geneva,1967.
- Berggren,W.A., a. Paleogene planktonic foraminiferal faunas on legs.1-1V(Atlantic Ocean),Joides Deep Sea Drilling Program a Synthesis.In Farinacci,A.(ed.)Proceed. 2nd .Intern.Conf.Plank. Microfoss.,1: pp.57-77.
- Berggren,W.A., b.Multiple phylogenetic zonations of the Cenozoic based on planktonic foraminifera.Proceed 2nd.,Intern.Conf.Plank.Microfoss.,Rome,pp.41-56.
- Berggren, W. A., . Recent advances in Cenozoic planktonic foraminiferal biostratigraphy, biochronology and biogeography: Atlantic Ocean. Micropal., 24(4): pp. 337-370.
- Berggren,W.A., Kent, D.V., Swisher. C.C.and Aubry, M.P.,1995. A revised Cenozoic Geochronology and Chronostratigraphy, In Berggren *et al.*, (eds). Geochronology, time scales and global stratigraphic correlation. SEPM. Spec. Publ.54 : pp.129-212.
- Bolli,H.M.,1957a. The Genera *Globigerina* and *Globorotalia* in the Paleocene-Lower Eocene Lizard Springs Formation of Trinindad,B.W.I.,In Studies in foraminifera by A.B.Loeblich and Collaboraters U.S.Nat.Mus.Bull.,215: pp.61-81.
- Bolli,H.M., b.Planktonic foraminifera from the Oilgocene-Miocene Ciperio Lemgua Formations of Trinidad, B.W.I.,In: Studies in foraminifera by Loeblich ,A.B.and Collaboraters,U.S.Nat.Mus. Bull ., 215: pp.97-123.

- Bolli, H.M., c. Planktonic foraminifera from the Eocene Navet and San Fernando Formations of Trinidad, B.W.I. In: Studies in foraminifera by Loeblich, A.B. and Collaborators. U.S. Nat. Mus. Bull., 215: pp.155-175.
- Bolli, H.M., 66. Zonation of Cretaceous to Pliocene marine sediments based on planktonic foraminifera. Bol. Inform. Assoc. Venez. Geol. Min. Pet., a(1): pp.3-32.
- Bolli, H.M., and Krasheninnikov, V.A., 1977. Problems in Paleogene and Neogene correlation based on planktonic foraminifera, Micropal., 23(4): pp.436-452.
- El-Naggar, Z.R., 1966. Stratigraphy and planktonic foraminifera of the Upper Cretaceous-Lower Tertiary succession in the Esna-Idfu region, Nile valley, Egypt, U. A. R., London, Br. Mus. (Nat. Hist.) Bull. Geol., Suppl. 2., 291p.
- El-Naggar, Z.R., and Ashour, M.M., 1983. Microbiostratigraphic analysis of the Late Cretaceous-Early Paleocene succession in Egypt (typified by the Dakhala, Nile valley and Red Sea coast sections). Proceed. 1st. Jordan. Geol. Conf. (1982., Amman), pp.112-180.
- Kassab, I.I.M., . Planktonic foraminifera of subsurface Lower Tertiary of N. Iraq. Jour. Geol. Soc. Iraq., 11: pp.119-159.
- Kassab, I. I. M., AL-Omari, F. S., and AL-Safawee, N. M., 1986. The Cretaceous-Tertiary boundary in Iraq (Represented by the subsurface section of Sasan well No. 1, NW. Iraq). Jour. Geol. Soc. Iraq., 19(2): pp.129-167.
- Krasheninnikov, V. A., 1965. Zonal stratigraphy of the Paleogene in the Eastern Mediterranean. Academy Naut. SSSR Geol. Inst. Trudy. 133 : pp. 1-76.
- Krasheninnikov, V. A., 1971. Cainozoic Foraminifera, Initial Report, Deep. Sea Drilling Proj., 6: pp.1055-1068.
- Morozova, V.G., 1939. On the stratigraphy of the Upper Cretaceous and Paleogene of the Emba – region according to the Foraminiferal fauna. (Russian with English Summary) Soc. Nat. Moscow, Bull., N.S. 47(4-5) : pp.59-86.
- Molina, E., Arenillas, I and Gonzalvo, C., 1996. Field trip-guide to the Paleocene-Middle Eocene of Agost, Caravaca and Alamedilla sections., Actos Early Paleogene stage boundaries, Zaragoza., pp.73-103.
- Postuma, J.A., 1971. Manual of planktonic foraminifera, Els., Publ., Co., Amsterdam., 420p.
- Salaj, J.; Pozaryska, K. and Czecchure, J., 1976. Foraminifera zonation and subzonation of the Paleocene of Tunisia. Acta Paleont. Polonica, 21(2): pp.127-196.
- Stainforth, R.M.; Lamb, J.L.; Luterbacher, H.; Beard, J.H. and Jeffords, R.M. 1975. Cenozoic planktonic foraminiferal zonation and characteristics of index forms. Univ. Kansas Paleont. Contr. Article, 62, 425p.
- Toumarkine, M. and Luterbacher, H.P., 1985. Paleocene and Eocene Planktic foraminifera In Plankton Stratigraphy, p.87-154, figs 42, In: Bolli, H.M., Saunders, J.B. and Perch-Nelsen, K. (eds.) Cambridge Univ. Press. 1030p.