

*

eghasemi@khayam.ut.ac.ir :

*

(/ / : / / :)

pseudotextularids rugoglobigerinids, globotruncanids
K/T (ecological generalist)

(K/T) polytaxic
(ecological specialists)

(Thanetien) K/T

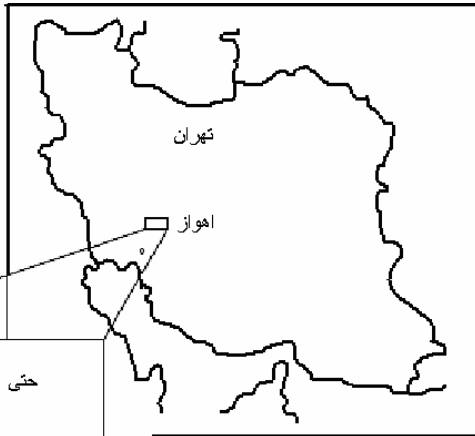
oligotaxic
hedbergellids, heterohelicids

pH

K/T

K/T

(upwelling)



()
E: ° ' " N: ° ' "

(Thanetien)

K/T

K/T

()

(ecological specialists)

e.s.

HCl)

(

(HF)

thermocline

(ZnCl₂)

(Keller *et al.* 2002, Luciani 2002)

Globotruncanita stuarti *G. aegyptiaca* *Globotruncana arca*

Globotruncana Rosita fornicata *Rugoglobigerina rugosa*

Globotruncanita stuartiformis *Rosita contusa* *ventricosa*

K/T

(ecological generalists)

Abathomphulus intermedius,)

e.g.

(*Abathomphulus* cf. *mayaroensis*

Globorotalia trinidadensis,)

K/T

(*Globigerina* cf. *daubjergensis*

K/T

K/T

Keller *et al.*)

K/T

hedbergellids heterohelicids

(2002, Luciani 2002

...

e.g. e.s.

(A ,)

pH

e.s.

e.s.

e.g.

(~~e.s~~/
e.g)

e.g.

e.s.

ecological generalist ecological specialist

e.g.

(Keller *et al.* 2002, Luciani 2002)

Sarjeant 1974, Eshet *et al.* 1994, Stuben *et al.*)

e.g./e.s. (2002

(osmotic)

e.s.

e.g.

e.g.

(Dodd & Stanton 1990, Brasier 1980, Lipps *et al.* 1979)

(P)

K/T

(N)

e.s.

K/T

e.g. e.s.

e.g.

K/T

K/T

K/T

(*Pseudotextularia elegans*. Globotruncanids) e.s.

(Si)

(N)

(P)

(Olsson *et al.* 2001)

Globigerina

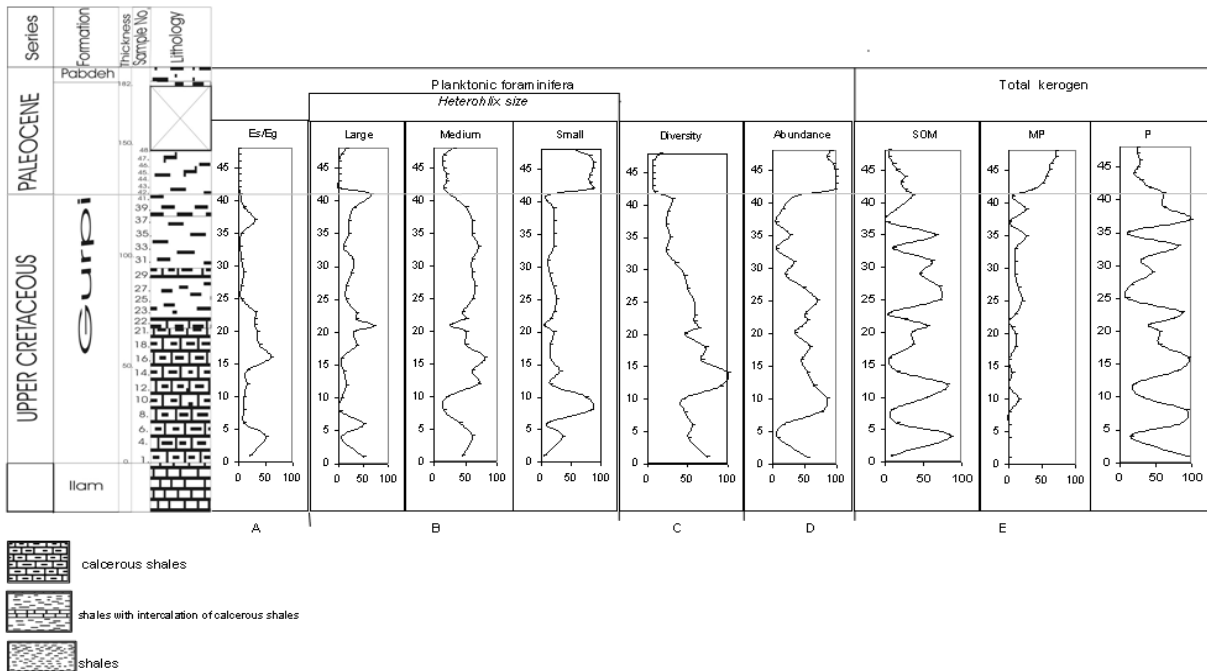
Dodd &)

(Kandiano & Bauch 2002, Keller *et al.* 2002,

(Stanton 1990

(Abramovich *et al.* 2003 , Keller 1993

upwelling



es/eg

:A

Heterohelix

:B

((polytaxic, oligotaxic simple diversity)

:C

(Abundance)

:D

(Total kerogen)

:E

e.s.

() generalist

() thermocline

Adatte *et al.* 2002,)

(Keller *et al.* 2002, Keller *et al.* 1995

Heterohelix

e.g. Braisser 1980, Lipps *et al.*)

e.s. (1979

- e.g. K/T

()

(small)

(medium)

(large)

Rugoglobigerina

K/T

Pseudotextularia

(B)

K/T

e.g.

e.s. K/T

K/T

(Barsier 1980)

(Lipps *et al.* 1979)

K/T

(N)

(p)

(Brasier1980, Schmidt 2000)

K/T

intraspecific (

Globigerina spp

(Kandiano *et al.* 2002, Schmidt *et al.* 2004)

(e.s./e.g.)

e.s

(specialist)

K/T

e.s./e.g.

specialist

(Schmidt *et al.* 2004)

CaCO₃

e.g.

interspecific (

e.g.

ca

() thermocline

thermocline

(Schimdt *et al.* 2004)

(Abundance)

e.g.

(Grant Gross 1987)

e.s.

Leckie)

(polytaxic , oligotaxic)

(1987

(simple diversity or species richness)

(CCD)

()

e.s.

(C)

(polytaxic)

Stuben *et al.* 2002, Hultberg &) (

K/T

Malmgren 1986, Shahin 1992, Caron *et al.* 1990, Leckie (D) (1987

()

e.g. (oligotaxic)

polytaxic

K/T

(oligotaxic)

() K/T

e.s./e.g.

e.g.

e.g.

()

Schimdt *et al.*)

(2004, Ottens & Nedarbrst 1992, Eijden 1995, Martinez 1989

(Total kerogen)

(MP)

(SOM)

(SOM)

(Tyson 1993)

(P)

(Abramovid & Keller 2002, Braisser 1980)

(Tyson 1993, Wavern & Visscher 1994)

K/T

()

upwelling

P MP SOM

(E)

Grant Gross)

() K/T

(1987

B

()

e.g.

e.s.

K/T

e.g.

(Dissolved oxygen)

(upwelling)

(Dissolve oxygen)

(upwelling)

)

e.g.

(

K/T

()

e.g.

e.s.

(Zonneveld *et al.* 1997)

K/T

(specialist)

(oligotaxic)

(polytaxic)

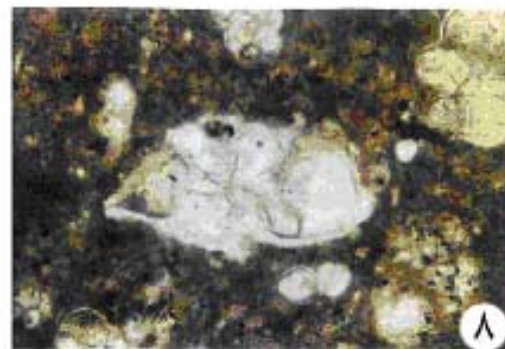
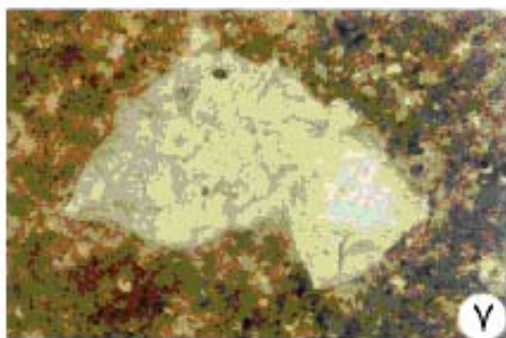
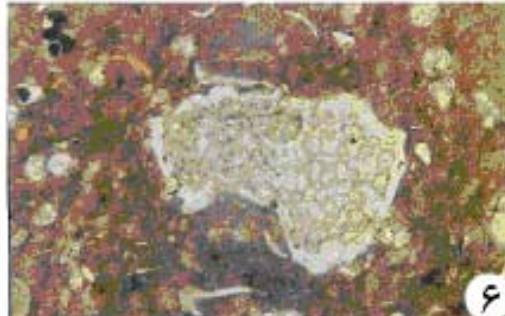
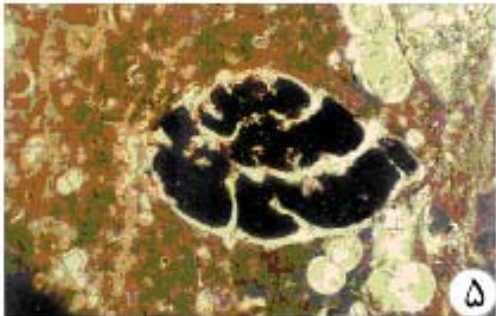
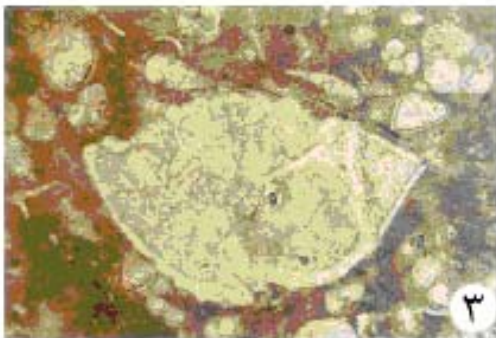
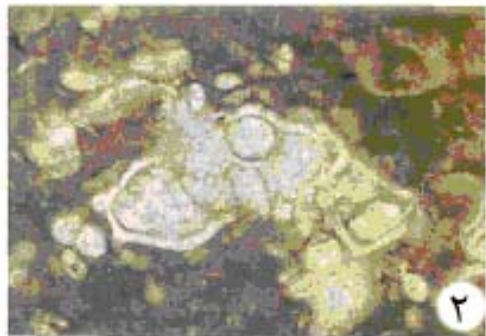
- e.g.

(upwelling)

K/T

Lysocline

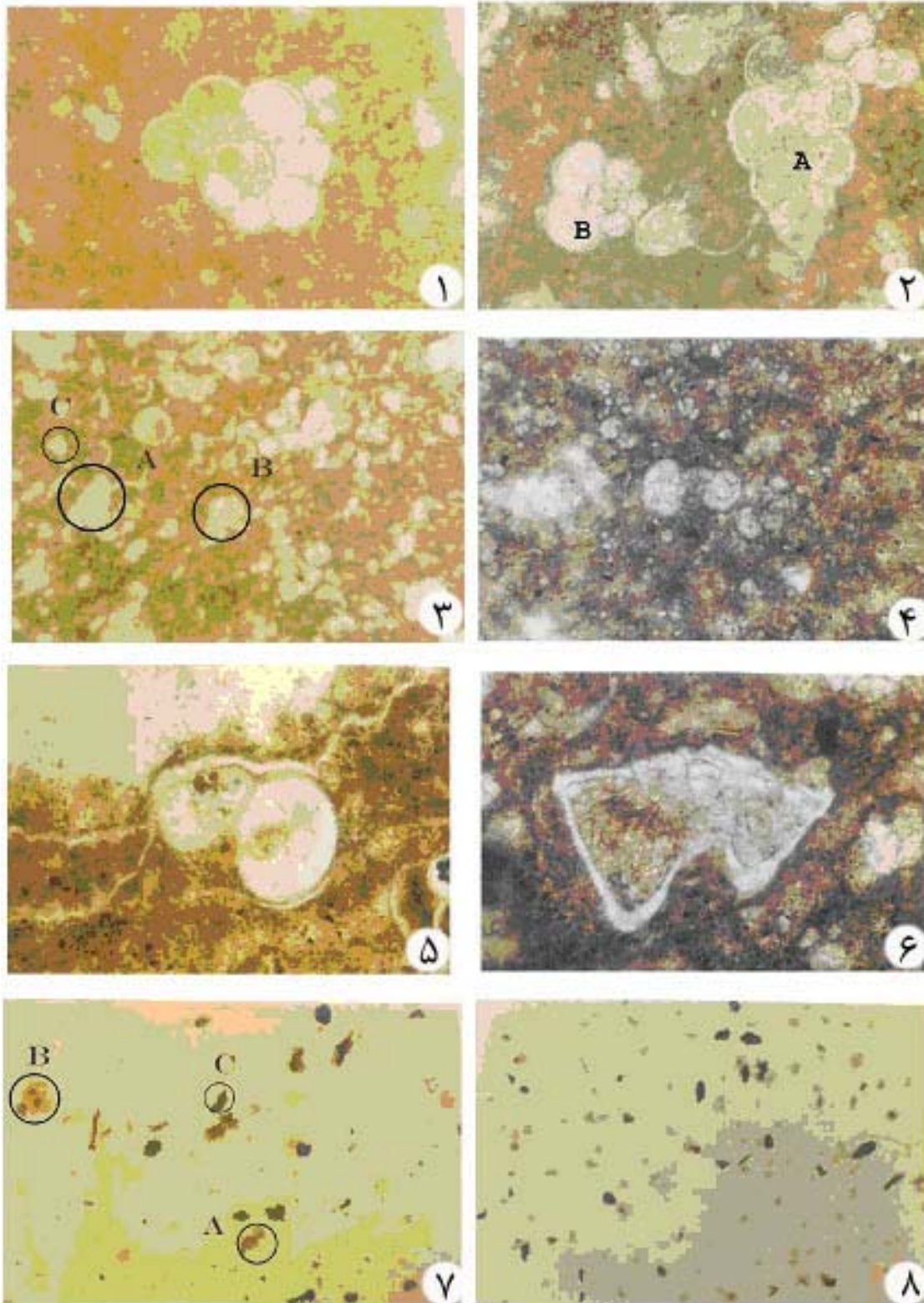
pH



Rosita fornicata Plummer - *Globotruncana calcarata* Cushman - :ecological specialists

Globotruncanita conica White *Globotruncanita stuartiformis* Dalbiez *Globotruncanita stuarti* De Lapparent

Praeglobotruncana citae Bolli - *Rosita contusa* Cushman *Globotruncana aegyptiaca* Nakkady



Hedbergella sp. (A), *Heterohlix* sp. (B) - *Hedbergella* sp. - :ecological generalists

Globigerina triloculinoides . *Globorotalia trinidadensis* Bolli . Large (A), Medium (B), Small (C) :*Heterohlix*

- . Total kerogen: SOM (A), MP (B), P (C) . *Morozovella velascoensis* Cushman . Plummer

-
- Abramovich S., Keller G., Stuben D., Berner Z. 2003: Characterization of late Campanian and Maastrichtian planktonic foraminifera depth habites and vital activites based on stable isotopic . *Paleo III* **202**: 1–29.
- Abramovich S., Keller G. 2002: High stress late Maastrichtian paleoenviroment: inference from planktonic foraminifera in Tunisia. *Paleo III* **178**: 145–164.
- Adatte T., Keller G., Stinnesbeck W. 2002: Late cretaceous to early paleocean climate and sea level fluctuons: The Tunisia record. *Paleo III* **178**: 165–196.
- Brasier M.D. 1980: Microfossils. Chapman and Hall. Pp. 90–120.
- Caron D., Anderson O., Lindsey G., Faber W., Eelinlina G. 1990: Effects of gametogenesis on test structure and dissolution of some spinose planktonic foraminifera and implications for test preservation. *Mar. Micropaleo.* **16**: 93–116.
- Dodd R., Stanton R. 1990: Paleocology concepts and application. John Wiley & Sons Interscience Publication.
- Eijden A. 1995: Morphology and relation frequency of planktonic foraminifera species in relation to oxygen isotopically depth habitats. *Paleo III* **113**: 267– 301.
- Eshet Y., Almogi-Labin A., Bein A. 1994: Dinoflagellate cyst, paleoproductivity and upwelling system: a late cretaceous example from Israel. *Mar. Micropaleo.* **23**: 231–240.
- Grant Gross M. 1987: Oceanography a view of the earth. Prentice-Hall, Inc., Englewood Cliffs, NewJersey.
- Hultberg S., & Malmgren B. 1986: Dinoflagellates and planktonic foraminifera paleobathymetry indices in the boreal upper most cretaceous. *Micropaleo.* **32(4)**: 310–323.
- Kanoliano E., Bauch H. 2002: Implications of planktonic foraminifera size fractions for the glacial interglacial paleocenography of the polar North Atlantic. *J. foramin. Res.* **32 (3)**: 245–251.
- Keller G., Adatte T., Stinnesbeck W., Luciani V., Karoui-Yaakoub N., Zaghbi-Turki D. 2002: Paleocology of the cretaceous-Tertiary mass extinction in planktonic foraminifera. *Paleo III* **178**: 257–297.
- Keller G., Li L., Macleod N. 1995: The cretaceous/Tertiary boundary stratotype section at Elkef, Tunis; How catastrophic was the mass extinction. *Paleo III* **110**: 221–254.
- Keller G. 1993: The cretaceous-Tertiary boundary transition in the Antractic ocean and its global implication. *Mar. micropaleo.* **21**: 1–45.
- Leckie R. 1987: Paleocology of mid cretaceous planktonic foraminifera: a comparison of open ocean and epicontinental sea assemblages. *Micropaleo.* **33**: 164–176.
- Lipps J, Berger W., Buzas M., Douglas R., Ross Ch. 1979: Foraminifera ecology and paleocology. *Soc. Econ. Paleon. Mineral.* short course no. **6**.
- Luciani V. 2002: High resolution planktonic foraminifera analysis from the cretaceous-Tertiary boundary at Ain Settara (Tunisia): evidence of an extended mass extinction. *Paleo III* **178**: 299–319.
- Martinez R., 1989: Foraminiferal biostratigraphy and paleoenvironment of the Masstrichtian colon mudstones of northern south America. *Micropaleo.* **35**: 97–113.
- Olsson R., Wright G., Miller K. 2001: Paleobiogeography of *Pseudotextularia elegans* during the latest Maastrichtian global warming event. *J. foraminifera Res.* **31(3)**: 275–282.
- Ottens G., Nederbragt A. 1992: Planktonic foraminifera diversity as indicator of ocean environment. *Mar. Micropaleo.* **19**: 13–28.
- Sarjent W.A.S. 1978: Fossil and living dinoflagellates. *Academic Press London & New York*.
- Schmidt D., Thierstein H., Bollmann G. 2004: The evolutionary history of size variation of planktonic foaminifera assemblages in the cenozoic. *Paleo III* **212**: 159–180.
- Shahin A. 1992: Contribution to the foraminifera biostratigraphy and paleobathymetry of the late cretaceous and early Tertiary in the western central sinai Egypt. *Rev. Micropaleo.* **35**: 157–175.
- Stuben D., Kramar U., Berner Z., Stinnesbeck W., Keller G., Adatte T. 2002: Trace elements, stable isotopic and clay mineralogy of the Elles K-T boundary section in Tunisia: indications for sea level fluctuions and primary productivity. *Paleo III* **178**: 321–345.
- Tyson, R.V., 1993, Palynofacies analysis, in D.G. Jenkins, ed., Applied micropalaeontology: Boston, Kluwer Academic Publishers, p. 153-191
- Tyson, R.V., 1993, Palynofacies analysis. In Jenkins D.G. (ed), Applied micropalaeontology. Boston, Kluwer Academic Publishers. Pp. 153-191
- Waveren I., Visscher H. 1994: Analynsis of the composition and selective preservation of organic matter in surfical deep-sea sediment form a high-productivity area, (Banda Sa, Indonesia). *Paleo III* **112**: 85–111.
- Zonneveld K., Versteegh G., Lange G. 1997: Preservation of organic-walled dinoflagellate cyst in different oxygen regimes: a 1000 year natural experiment. *Mar. Micropaleo.* **29**: 393–405.