

## MARDINELLA, A NEW GENUS AND DISCUSSION ON ORBITOLITES SHIRAZENSIS RAHAGHI, 1983

ENGIN MERIÇ\*  
TANYOL ÇORUH\*\*

*SUMMARY: It is discussed that the benthic foraminifera Orbitolites shirazensis Rahaghi 1983 which was described from the Upper Paleocene sedimentary rocks around the Shiraz Area, West Iran should be included in a new genus Mardinella rather than in the genus Orbitolites.*

*Key Words: Mardinella, orbitolites shirazensis, upper paleocene, Rahaghi, Mardin-Turkey.*

### INTRODUCTION

*Orbitolites shirazensis* Rahaghi has first been found in the Thanetian sedimentary rocks from the Shiraz Area, West Iran by Rahaghi (1). His study in the only one recording of the occurrence of this species. However, we have observed the same forms in the benthic foraminifer-rich limestones of Thanetian age in the NE Mardin Area, SE Anatolia (Figure 1). It is concluded that *Orbitolites shirazensis* does not have all of the generic characteristics of *Orbitolites* as described by Lehmann (2), therefore, a new genus should be erected.

### SYSTEMATIC DESCRIPTION

Phylum PROTOZOA Goldfuss, 1817  
Class Rhizopodea Von Siebold, 1845  
Order Foraminiferida Eichwald, 1830  
Superfamily Rotaliacea Ehrenberg, 1839  
Family Soritidae Ehrenberg, 1839  
Subfamily Soritinae Ehrenberg, 1839

### Genus Mardinella nov. gen.

*Type species: Orbitolites shirazensis* Rahaghi, 1983  
Derivation of name: The genus name is given after the city Mardin where abundant individuals of *Mardinella shirazensis* were found.

*Diagnosis:* Test is free and calcereous, bow-shaped with two concave surfaces; diameter is 1.88-4.70 mm, marginal height is about 0.31-0.46 mm; macrospheric embryo is binocular in equatorial section; chambers following the embryo are circular and are separated to chambers by vertical septula; chambers are separated by irregular and horizontal septula.

*Mardinella shirazensis* (Rahaghi), 1983 emend. here (Plate I, figs. 1-8).

*Emended description:* Macrospheric embryo which consists of a protoconch and a deuteroconch at the center is obvious in horizontal sections. Protoconch is circular, and its inner diameter is 192-224 microns and the thickness is 16 microns. Deuteroconch is bean-shaped and surrounds the protoconch. The inner length of it varies between 240-288 microns, but mostly 336-384 microns. The chambers following the macrospheric embryo are circular and are divided into numerous horizontal septula. The central chambers have an inner width of 64-80 microns and a height of 32-64 microns. The marginal chambers have an inner width of 80-140 microns and a height of 32-48 microns. Both chambers are rectangular. No stolons are observed between the septula and the chambers are arranged in annular series. The dimensions of the chambers surrounding macrospheric embryo vary from center to edges in the horizontal sections. The central chambers are usually larger than the marginal chambers. The chambers are small at the center, but become larger and wider at the edges.

\*From Jeoloji Mühendisliği Bölümü, Maden Fakültesi, İstanbul Teknik Üniversitesi, 80626 Maslak, İstanbul, Türkiye.

\*\*From Türkiye Petrolleri A. O., Arastırma Merkezi, 06420, Ankara, Türkiye.

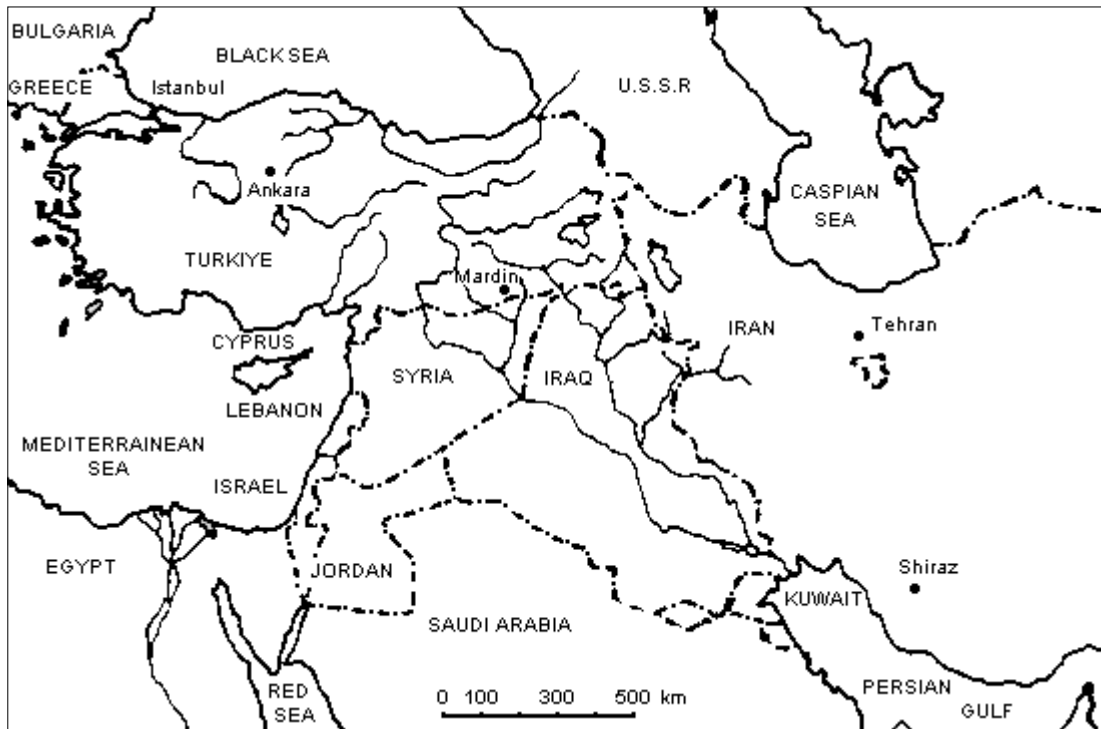
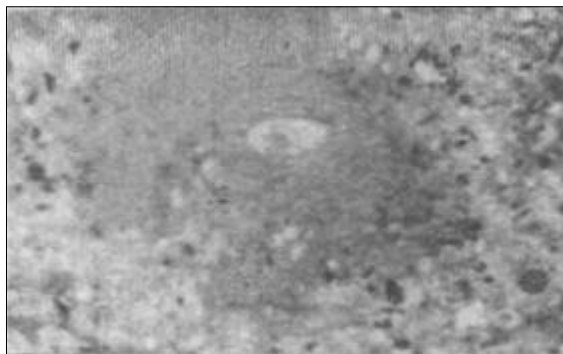


Figure 1: Index map of Türkiye and Iran showing the locations of the Mardin and Shiraz areas.

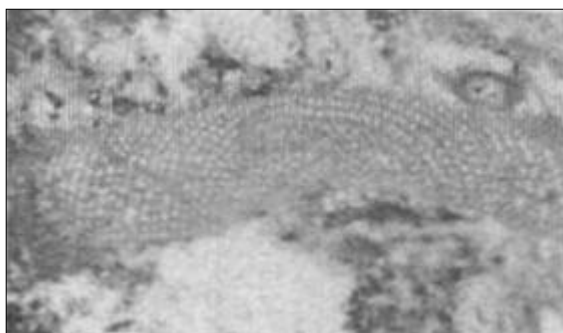
Plate 1: The specimen are from the outcrops near Becirman, Zengan, and Bagözü Villages, Mardin Area, South East Türkiye.



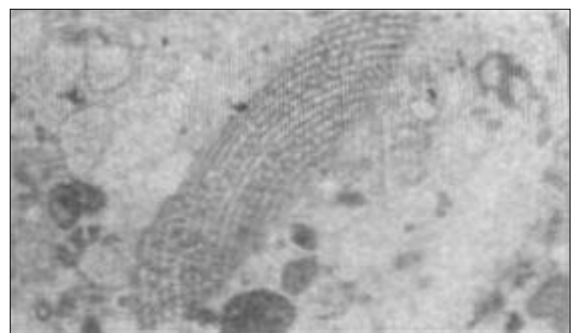
(1)



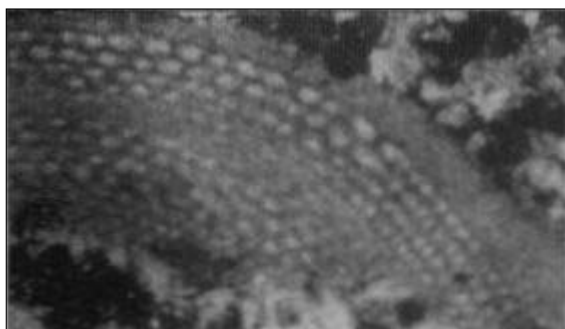
(2)



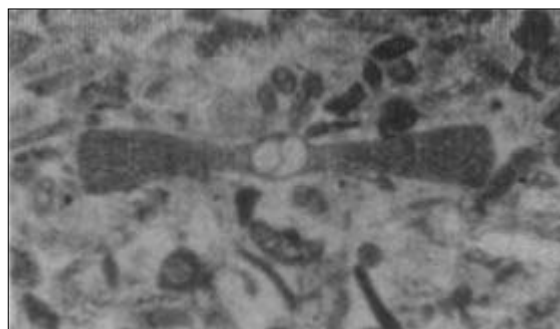
(3)



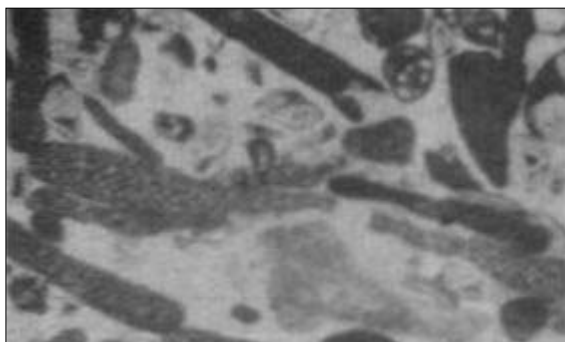
(4)



(5)



(6)



(7)



(8)

Different views of *Mardinella shirazensis* (Rahaghi).

1. Equatorial section showing bilocular embryonic apparatus, x 20, Becirman (X-84-T. Ç. -253/1).
2. Portion of equatorial section, x 20, Zengan (X-84-T. Ç. -294/1).
3. Portion of equatorial section, x 20, Becirman (X-84-T. Ç. -253/3).
4. Portion of equatorial section, x 20, Zengan (X-84-T. Ç. -294/1).
5. Portion of peripheral parts of equatorial section, x 30, Becirman (X-84-T. Ç. -253/3).
6. Axial section, x 20, Bagözü (X-84-T. Ç. -327/2).
7. Axial section, x 20, Zengan (X-84-T. Ç. -294/4).
8. Portion of transverse section showing the apertures arranged in several rows, x 50, Bagözü (X-84-T. Ç. -327/3).

The overall shape of the test is bow-like in axial sections. The horizontal chambers consist of chamberlets which are separated by irregular septula in the axial sections. Apertures are arranged in several rows in transverse sections.

*Remarks:* Microspheric specimens are not observed in the SE Anatolian samples, similar to the Shirazean samples. *Miscellanea* cf. *primitiva* Rhaghi, *Miscellanea* sp., *Lockhartia diversa* Smout, *Kathina major* Smout, *Rotalia* sp., *Periloculina* sp., *Ataxophragmiidae*, *Miliolidae* and *Algae of Late Paleocene* (Thanetian) age are also observed together with this new genus in the SE Anatolian samples (Becirman, Zengan and Bagözü villages, Mardin Area).

## DISCUSSION

*Orbitolites shirazensis* Rahaghi does not have the characteristic features of the genus *Orbitolites* as discussed above. The septula which divide the circular chambers into chamberlets are oblique in *Orbitolites* whereas vertical to the chamber walls in *Mardinella*. The diagonal stolons connecting the chambers in different rows are not divided by horizontal septula in *Mardinella*.

## CONCLUSION

Because of the reasons discussed above, *Orbitolites shirazensis* can not be included in the genus *Orbitolites*. We, therefore, propose a new genus *Mardinella* based on the Iranian and Turkish specimens.

ACKNOWLEDGEMENTS

The authors would like to thank the authorities of the Turkish Petroleum Corporation, Research Center and Exploration Department for the permission to publish the data presented in this paper.

REFERENCES

1. *Lehmann, R : Strukturanalyse einiger gattungen der subfamilie Orbitolitinae. Eclogae Geol Helv, 54:597-667, 1-14, 1961.*

2. *Rahaghi A : Stratigraphy and faunal assemblage of Paleocene-Lower Eocene in Iran. Ministry of Oil, National Iranian Oil Company, Geological Laboratories, Publication No 10, pp 1-73, pp 1-49, 1983.*

Correspondence:

Engin Meriç

Istanbul Teknik Üniversitesi,

Maden Fakültesi,

Jeoloji Mühendisliği Bölümü,

80626 Maslak, Istanbul, TURKIYE.