Mineral Res. Expl. Bull., 138, 35-43, 2009

NEW SPECIES *"MIOGYPSINOIDES AKCADAGENSIS* N. SP." FROM A CHATTIAN DEPOSIT FROM AKÇADAĞ REGION, MALATYA, TURKEY

Fatma GEDİK* and Ercüment SİREL**

ABSTRACT.- This study aims to define the new miogypsinid species " Miogypsinoides akcadagensis n. sp." from the Late Oligocene of the Akcadag region located in western Malatya, Turkey. The new species differs from the Chattian Miogypsinoides by less spiral chambers (X value). M. akcadagensis is characterized by 8-10 trochospiral chambers in its early rotaliid stage, while M. complanatus (Schlumberger) has spiral chambers more than 17 and M. bermudezi Drooger, M. borodinensis Hanzawa and M. bantamensis Tan have 12-14 spiral chambers.

Key Words: Chattian, Miogypsinoides, Malatya, Turkey.

INTRODUCTION

This study was carried out in the Oligocene-Lower Miocene units cropping out extensively in vicinity of Akçadağ town which is located west of Malatya basin (Figure 1) in eastern Turkey. In this area, the pre-Oligocene rocks constitute the basement rocks while the post-Lower Miocene rocks form the cover units. The pre-Oligocene units are comprised of Middle Triassic-Cretaceous, Jurassic-Cretaceous and Upper Cenonian neritic limestones, Upper Cretaceous-Paleocene clastics and carbonate rocks, Lower-Middle Eocene terrestrial clastic rocks, Middle-Upper Eocene neritic limestones, clastics and carbonate rocks and Mesozoic ophiolitic rocks. The Oligocene unit is partly comprised of clayey limestone and the Lower Miocene unit is comprised of clastic limestone, marl and reefal limestone sequences. The younger units cropping out in the study area are the Upper Miocene-Pliocene terrestrial clastics and pyroclastic rocks, Pliocene and Plio-Quaternary terrestrial deposits and alluvium fan deposits, slope debris and recent fluvial deposits (Karaman et al., 1993).

A stratigraphic section was measured across the Oligocene limestone sequence which crop out in Akçadağ region (Figure 2). The starting point and the ending point of the section is the Terziyurdu hill in Edilme village and Doğan ridge, respectively. The benthic foraminifera content of the section were described and a new *Miogypsinoides* species was found. Among the previously described species, no *Miogypsinoides* species with 8 – 10 trochospiral chambers was recorded. Description of the new species was illustrated in plate 1, figures 1 to 7 based on an oriented section.

SYSTEMATIC PALEONTOLOGY

Family: Miogypsinidae Vaughan, 1928

Genus: *Miogypsinoides* Yabe and Hanzawa, 1928

Type species: *Miogypsina dehaarti* Van Der Vlerk, 1924

Miogypsinoides akcadagensis n. sp.
(Plate 1, Figs. 1-7)

Derivation of name: This species was named after Akçadağ town of Malatya which is the typical locality of the species.

*Maden Tetkik Arama Genel Müdürlüğü, Jeoloji Etütleri Dairesi-Ankara
**Ankara Üniversitesi Mühendislik Fakültesi Jeoloji Mühenliği Bölümü-Ankara

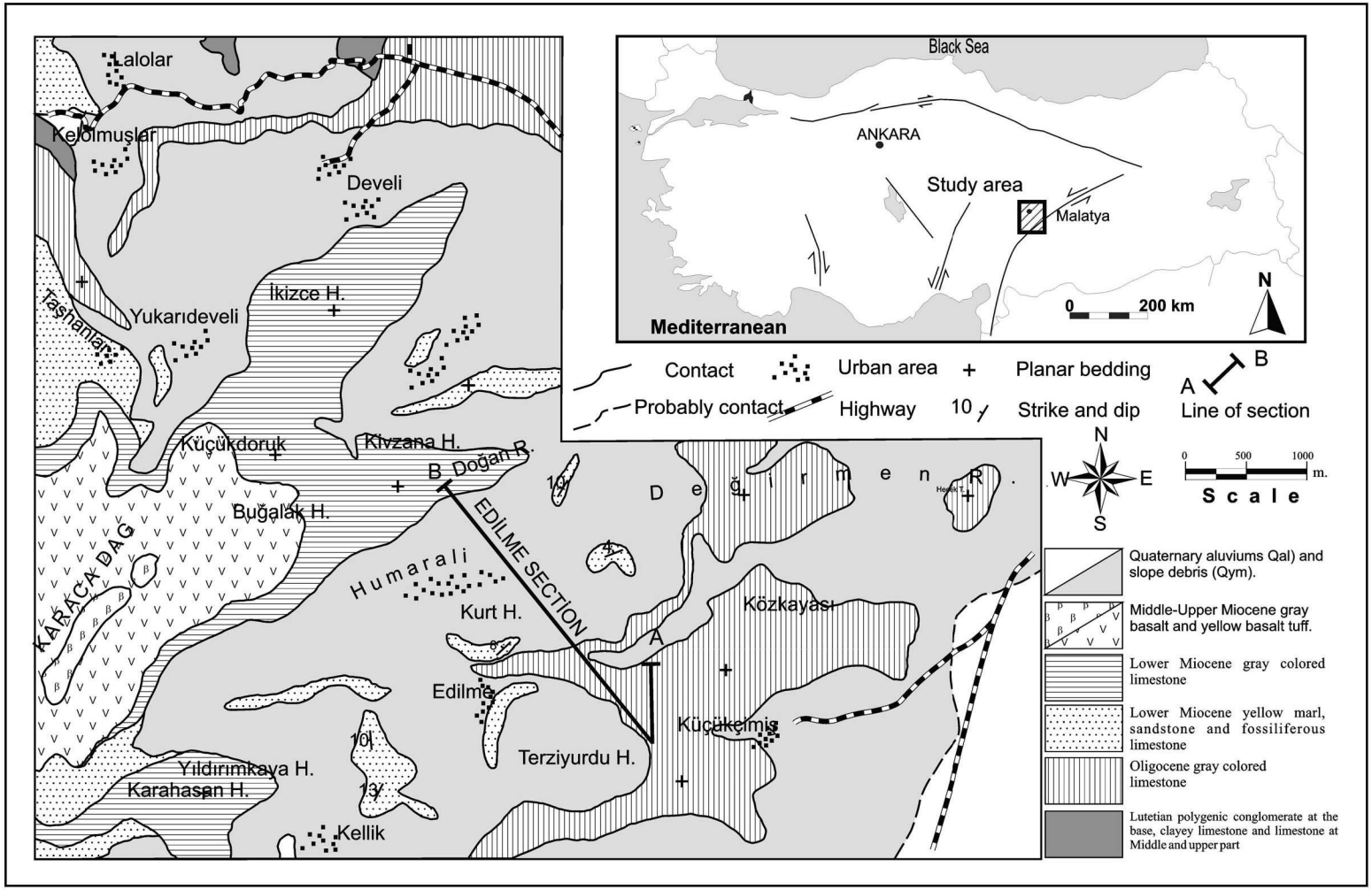


Figure 1- The geological and map location maps of study area (modified from Karaman et al. 1993).

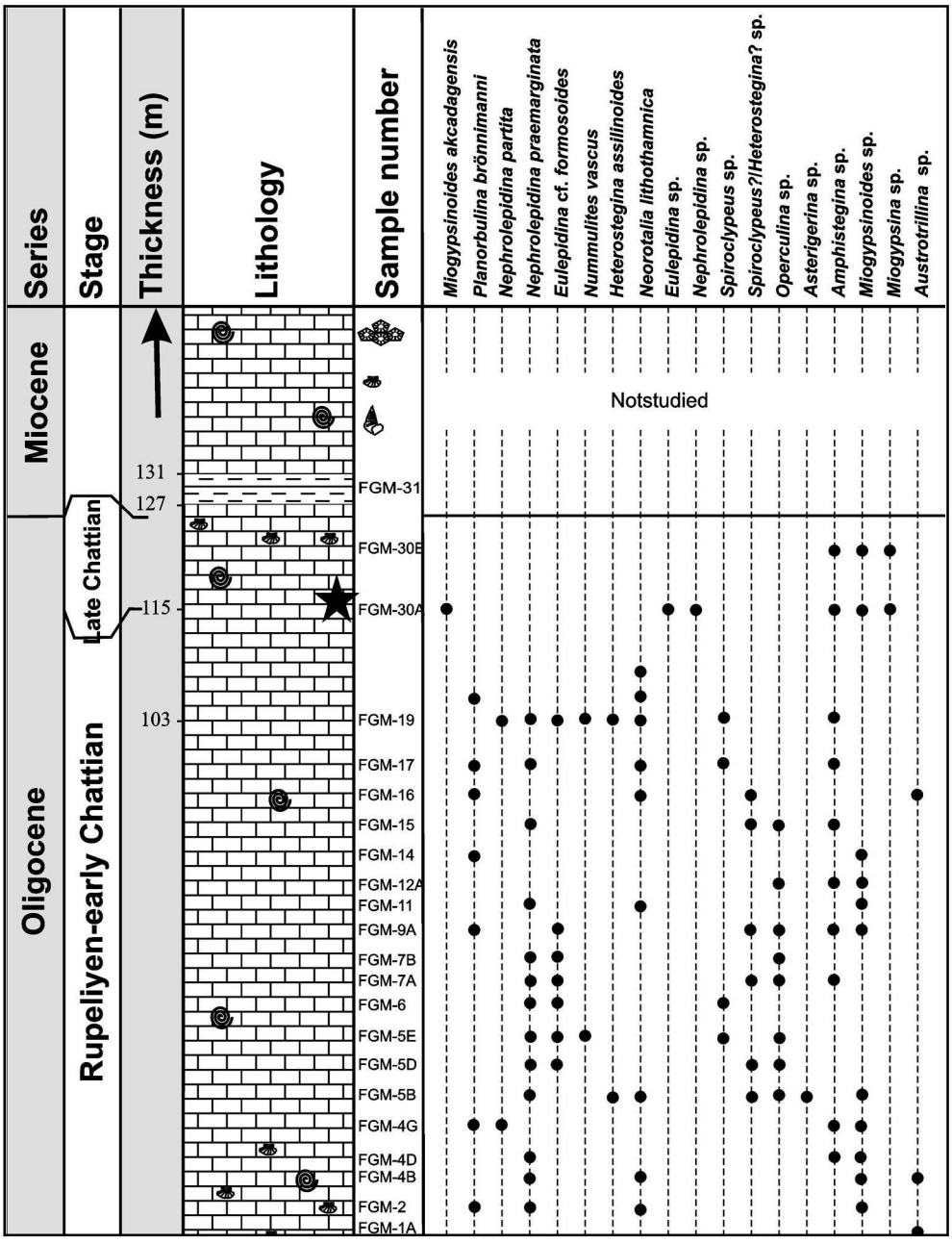


Figure 2- Stratigraphic distribution of the foraminiferal species in the Edilme section.
★ Type level of the *M. akcadagensis* n.sp.

Holotype: Equatorial section (FGM-30A, figured in Plate 1, Figure 1)

Deposited at: Paleontology archieve of the Department of Mineral Research and Exploration (MTA), Ankara

Materyal: 7 samples (FGM-30A/3/1, FGM-30A/12/1, FGM-30A/14/3, FGM-30A/2/10, FGM-30A/2/4, FGM-30A/12/2, FGM-30A/5/2).

Type locality: Akçadağ town, Malatya, Turkey (Sheet: L39 b3, cordinates N 25° 55' 53.86", E 38° 20' 6.45; N 25° 54' 46.97", E 38° 20' 52.91").

Type level: SBZ 23; Late Chattian.

DIAGNOSIS

The equatorial (Plate 1, Figure 1-3, 5) and axial sections (Plate 1, Figure 4, 6, 7) clearly show that the general shape of the shell is fan-like with rather thickened apical portion. The shell of the new species is formed in two periods: the early stage is typical rotaliid manner coiled trochospirally, adult period chambers arranged in miogypsinid pattern.The diameter of the shell measured along the apical-frontal line (Amato and Drooger, 1969) ranges from 1,1 mm to 1,3 mm. The diameter and height of the rotaliid stage are 0,83 mm and 0,55 mm respectively (Plate 1, Figure 6). The embryonic apparatus positioned at the apex of the fan, consisting of spheric protoconch (0.225 -0.250 mm in diameter) and hemispherical deutroconch (0.200 - 0.250 mm in diameter), that are followed by 8-10 spiral chambers of the early stage (Plate 1, Figures 1-3, 5). The miogypsinid chambers in the adult stage are smaller in comparison with the spiral chambers.

REMARKS

According to Drooger, and Laagland (1986) and Drooger (1993), the number of the spiral chambers is an important specific feature for the *Miogypsinoides* species. The specimens here described as *Miogypsinoides akcadagensis* n.sp. with 8-10 spiral chambers differs from the previously defined species such as *M. bermudezi* Drooger (1951), *M. borodinensis* Hanzawa (1940), *M. formosensis* (Yabe and Hanzawa, 1928) and *M. bantamensis* Tan (1936) which they have 13-14, 13, 16 and 12 spiral chambers respectively.

STRATIGRAPHIC DISTRIBUTION

The new species was found in the algal limestone beds in the central parts of the Edilme measured stratigraphic section (sample no. FGM-30A) together with *Miogypsina* sp., *Amphistegina* sp., *Eulepidina* sp. and *Nephrolepidina* sp (Figure 2). The algal limestone beds bearing the new species are located between the Late Rupelian-Chattian marl beds with calcareous nannoplankton species such as *Cyclicargolithus floridanus* (Roth and Hay), *Coccolithus eopelagicus* (Bramlette and Riedel), *Ericsonia robusta* (Kamptner), *Cyclicargolithus abisectus* (Müller) and Rupelian-Early Chattian algal limestone with *Nephrolepidina praemarginata* Douvillé, *N. partita* Douvillé, *Eulepidina* cf. *formosoides* Douvillé, *Nummulites vascus* (Joly and Leymerie), *Heterostegina assilinoides* Blanckenhorn, 1890 emend. Henson, 1937, *Neorotalia lithothamnica* Uhlig, *Planorbulina brönnimanni* (Bignot and Deqrouez); therefore the stratigraphic level of the new species is accepted as Chattian based on the stratigraphic position and the fossil taxons determined.

ACKNOWLEDGEMENT

The authors thank the management of the Department of Geological Research and Dr.Yavuz Bedi (MTA, the chief of the Project, project No 2005-14J3) for their support, Dr. Halil Yusufoğlu (MTA) for field section site. Project members Fatih Kanar (MTA), Özgür Kandemir (MTA) and Korhan Çakır (MTA) for their helps during field studies. We also thank to Ayşegül Aydın (MTA) for determining the calcareous nannoplanktons.

Manuscript received January 21, 2009

REFERENCES

Amato, V. and Drooger, C.W. 1969. How to measure the angle in the Miogypsinidae. Revista Espanola de Micropaleontologia, I (1): 19-24.

Drooger, C.W. 1951. Notes on some represantatives of Miogypsinella. K. Nederl. Akad. Wetensch., Proc., Amsterdam, Netherlands, ser. B, 54 (4): 357 - 365.

_____ 1993. Radial foraminifera; morphometrics and evolution. North Holland, Amsterdam, 242 pp.

_____ and Laagland, H. 1986. Larger foraminiferal zonation of the European-Mediterranean Oligocene. Prooceedings of the Koninklijke Nederlandse Akademie van Wetenschappen, Series B. Palaeontology, Geology, Physics and Chemistry, 89, 135-148.

Hanzawa, S. 1940. Micropaleontological studies of drill cores from a deep well in Kita-Daito-zima (North Borodino Island). In: Jubilee Publication in commemoration of Prof. H. Yabe's 60th Birtday. Sendai, Japan: Tôhoku Imp. Univ., vol. 2, 2 pp. 755-802, pl. 39, figs. 1-9; p. 767, tf. 2.

Karaman, T., Poyraz, N., Bakırhan, B., Alan, İ., Kadınkız, G., Yılmaz, H. and Kılınç, F. 1993. Malatya-Doğanşehir-Çelikhan dolayının jeolojisi. MTA Rap., 9587 (unpublished), Ankara.

Sirel, E. 2003. Foraminiferal description and biostratigraphy of the Bartonian, Priabonian and Oligocene shallow-water sediments of the southern and eastern Turkey, Revue Paléobiol., Genève, 22 (1), 269-339.

Tan Sin Hok, 1936. Zur Kenntnis der Miogypsiniden. Ingenieur Nederl. Indie, Bandoeng, Java, Jaarg, 3, Afd. 4 (Mijnb. Geol.), pp. 45-61, 84-98, 109-123, pl. 1, fig. 13.

Yabe, H. and Hanzawa, S. 1928. Tertiary foraminiferous rocks of Taiwan (Formosa). Imp. Acad. Japan, Proc., Tokyo, vol. 4, pp. 533-536, p. 536, tf. 1a-b.

PLATE - I

***Miogypsinoides akcadagensis* n. sp.**

Chattian, from the Edilme village, W Akçadağ, W Malatya, eastern Turkey, all figs X 60)

1- Equatorial section (FGM-30A/3/1), showing embryonal apparatus, spiral chambers of early stage and miogypsinid chambers.

2- Equatorial section (FGM-30A/12/1), holotype, showing embryonal apparatus, spiral chambers of early stage and miogypsinid chambers.

3- Incomplete equatorial section (FGM-30A/14/3), showing embryonic chambers and spiral chambers only.

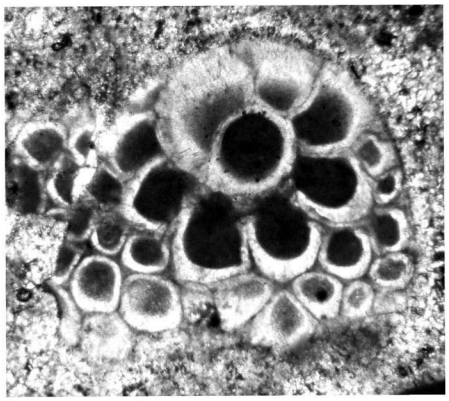
4- Axial section (FGM-30A/2/10).

5- Almost equatorial section (FGM-30A/2/4).

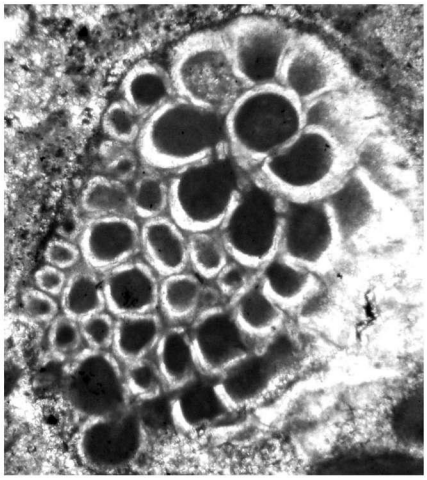
6- Centered axial section (FGM-30A/12/2), showing rotaliid stage and miogypsinid period.

7- Centered axial section (FGM-30A/5/2), showing rotaliid stage and miogypsinid period.

PLATE - I

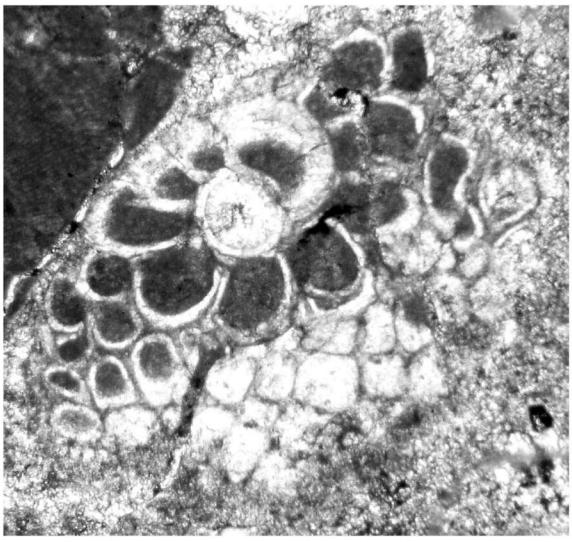


1

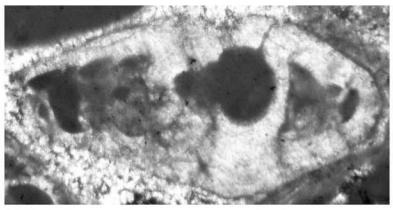


2

3

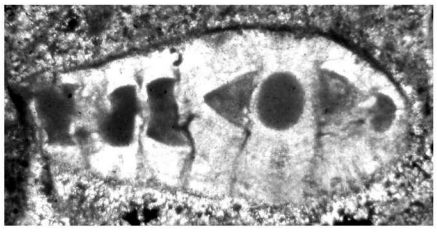


5



4

6



7