



Calcareous nannofossils from the type section for Rabisha Formation (NW Bulgaria)

Варовити нанофосили от типовия разрез на Рабишката свита (СЗ България)

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Key words: calcareous nannofossils, Rabisha Formation, Upper Albian–Lower Cenomanian, NW Bulgaria.

Introduction

The sediments of Rabisha Formation were described by Tzankov (1972) under the name “Rabiša-Komplex”. Subsequently, Filipov (1995) formalized the unit, determining its rank of formation. Tzankov (1972) designated the exposure at the NW foot of Rabisha hill, near Tolovishko vrelo karst spring, as stratotype section for the unit, although he did not describe it. Since then, no information on lithology, fossil characteristics or age of the type section has been provided.

This paper presents some preliminary paleontological data and an attempt at determining the age of Rabisha Formation in its stratotype by means of calcareous nannofossils.

Geological setting

The studied section is situated near Tolovishko vrelo karst spring, ~600 m westwards from Rabisha Lake’s dam (GPS 43°44’09.8”N; 22°33’31.2”E). In terms of tectonic position, it belongs to Kula Unit (Zagorchev et al., 2009).

The stratigraphic succession is overturned. The rocks of Slivnitsa and Rabisha Formations are exposed, the two units being in tectonic contact with each other. The contact between the lithostratigraphic units is considered as base of the section. Rabisha Formation consists of 14-m thick alternating dark grey thin-bedded silty marlstones and grey to light grey clayey limestones. The latter have subordinate presence.

Material and methods

Nine samples (TVr 1-9) for preliminary nannofossil examination were collected preferentially from the marlstones. Sampling density varies from 1 to 2 m.

Simple smear-slides were made, using the methodology described by Bown and Young (1998). These slides were viewed on transmitting light microscope.

The average state of preservation of the observed nannofossil assemblages is moderate, i.e. virtually all specimens are easily identifiable, but secondary calcite overgrowth and calcite dissolution have modified the appearance of certain taxa/features.

For biostratigraphic subdivision of the studied sediments, the UC zonation of Burnett (1998) was applied.

Calcareous nannofossils

A total of 42 nannofossil species, belonging to 28 genera, are identified. The association is dominated by *Watznaueria barnesiae* (Black, 1959) Perch-Nielsen, 1968; *Tranolithus orionatus* (Reinhardt, 1966a) Reinhardt, 1966b; *Eiffellithus turriseiffelii* (Deflandre in Deflandre and Fert, 1954) Reinhardt, 1965; *Rhagodiscus* spp. and *Staurolithites gausorhethium* (Hill, 1976) Varol and Girgis, 1994. Rare fragments of *Calculites anfractus* (Jakubowski, 1986) Varol and Jakubowski, 1989, together with common remains of *Prediscosphaera columnata* (Stover, 1966) Perch-Nielsen, 1984 and *Prediscosphaera ponticula* (Bukry, 1969) Perch-Nielsen, 1984 occur in all samples. However, no coccoliths of *Gartnerago theta* (Black in Black and Barnes, 1959) Jakubowski, 1986 and *Prediscosphaera cretacea* (Arkhangelsky, 1912) Gartner, 1968 could be reliably identified. The first occurrence (FO) of *Corollithion kennedyi* Crux, 1981 is revealed in sample TVr 7 (at 11.95 m from the base).

The co-occurrence of *Eiffellithus turriseiffelii* and *Calculites anfractus* indicates subzone UC0c, while the FO of *Corollithion kennedyi* defines the base of subzone UC1a. Thus, the first 11.95 m of the studied

section can be assigned to subzone UC0c and the last 2.05 m belong to subzone UC1a.

Results

Analysis of the calcareous nannoflora, collected from the type section for Rabisha Formation, resulted in assigning the studied rocks to the upper parts of subzone UC0c-lower parts of UC1a. The absence of reliably determinable *Gartnerago theta* and *Prediscosphaera cretacea*, which indicate the Cenomanian parts of subzone UC0c, according to Kennedy et al. (2004), does not allow distinguishing the Albian from the Cenomanian parts of this biostratigraphic unit. Thus, in terms of chronostratigraphy, the studied sediments belong to Upper Albian–Lower Cenomanian.

Acknowledgements: Thanks to Prof. Kristalina Stoykova for guidance and much-appreciated critical review.

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