The Paleogene/Neogene boundary in northern Moldavia (Moldovita Basin, Romania)

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The Paleogene/Neogene boundary in the External Flysch area of the Eastern Carpathians (Northern Moldavia) constituted for a long time the topic of a controversial and intense scientific debate. Calcareous nannofossils were previously studied from other basins, situated south of the Moldovita Basin: the Tarcau (Martini & Lebenzon, 1971; Lebenzon, 1973), Tazlau (Ionesi & Gheta, 1978; Dicea & Dicea, 1980) and Buzau Basins (Melinte, 1988).

The present study was carried out in the Moldovita Basin, along the Dumbravnic Brook. In the section from the Dumbravnic Brook, which crosses the Dilma – Deia and Palamina – Ascutita synclinal structures, the sediments belong to the Vinetisu Formation. This Formation represents the last term of the Moldovita lithofacies and it consists of sandstones and clays, 100 – 120 m thick. The calcareous sandstones are disposed in beds with thicknesses of 30 – 40 cm (Grasu *et al*., 2007).

Calcareous nannofossils from the Moldovita Basin, which constitute the object of our study, have been already investigated (Ionesi & Meszaros, 1989), but for another time-interval, with respect to the present work. In the Moldovita Basin, the Oligocene/Miocene boundary was recorded in the northern part of the Tarcau Nappe, in the Vinetisu Formation. Calcareous nannofossils from the Izvor Brook and from the Jaslo Limestone have been studied. The presence of the NP25 Biozone, with *Sphenolithus ciperoensis*, was documented. In the succession from Izvor Brook that crosses the Dilma – Deia and Palamania – Ascutita synclines, the subsequent biozone is represented by NN1, with *Triquetrorhabdulus carinatus* (Ionesi & Meszaros, 1989; Juravle, 2007). Previous studies mainly focused on the Upper Member of the Jaslo Limestone and on the Vinetisu Formation from the Tarcau Nappe – Moldovita lithofacies. In the Upper Member of the Jaslo Limestone, an assemblage with *S. ciperoensis*, typical for the NP25 Biozone was identified. In the Vinetisu Formation, calcareous nannofossils assemblages studied from the three members provided the following biozones: the Lower Member – *Sphenolithus ciperoensis* Biozone - NP25, and an assemblage with *Helicosphaera euphratis*, *H. recta*, *Reticulofenestra bisecta*, *Pontosphaera enormis* (NP25 or NN1); from the Middle Member – NN1 Biozone, with *Triquetrorhabdulus carinatus*; finally, from the Upper Member, any biozone was identified. Thus, the Oligocene/Miocene boundary was evidenced in the terminal part of the Lower Member of the Vinetisu Formation (Ionesi & Meszaros, 1989).

In this work, almost all the calcareous nannofossil taxa have a wide distribution spanning the Eocene and Oligocene in the first part of the section. The most frequent Paleogene species are basically representative of the Oligocene: NP21-22 - *Reticulofenestra umbilica*, *Lanternitus minutus*, *Coccolithus formosus*, *Cyclicargolithus floridanus*, and NP23-24: *Helicosphaera ethologa*. In the second part of the section, calcareous nannofossil assemblages contain species that are present also at the top of the Oligocene/Miocene boundary, and are frequent in the Lower Miocene: *Helicosphaera scissura* (NP24-NN4), *H. recta* (NP24-NN4), *Discoaster deflandre*i (NP11-NN7), *Sphenolithus moriformis* (NP12-NN9); also Paleogene species are present. Thus, the presence of the Paleogene/Neogene boundary can be documented in the section from the Dumbravnic Brook in the Moldovita Basin.

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