

High-diversity chitinoideidellid associations from the West Balkan (Bulgaria) correlated with their record in the Western Carpathians

ISKRA LAKOVA¹, SILVIYA PETROVA¹, DANIELA REHÁKOVÁ²

1 – Geological Institute, Bulgarian Academy of Sciences, Acad. G. Bonchev Str., Bl. 24, 1113 Sofia, Bulgaria

2 – Department of Geology and Paleontology, Faculty of Natural Sciences, Comenius University in Bratislava, Mlynská dolina, Ilkovičova 6, SK-842 15 Bratislava, Slovakia

Borza (1969) firstly documented diverse chitinoideidellids from the West Carpathians in Slovakia. Later Pop (1997, 1998a), Reháková (2002) and Sallouhi et al. (2011) introduced additional genera and species belonging to the Family Chitinoideidellidae Trejo, 1973. Then these highly diverse associations were also reported from Morocco (Benzaggagh et al., 2010).

The biostratigraphic significance of chitinoideidellid diversity and vast geographical distribution is related to direct calibration of chitinoideidellid zonations and bioevents to calcareous nannofossils and calcareous dinocysts in the Tithonian, as well as with magnetostratigraphy. Thus, the base of Chitinoideidella boneti Subzone correlates quite well with Microcanthum ammonite zone, i.e with the Lower/Upper Tithonian boundary.

Recent chitinoideidellid studies in Tithonian pelagic and hemipelagic carbonates of the West Balkan tectonic unit in Bulgaria revealed high-diversity chitinoideidellid association comparable with the extensive results in the West Carpathians in Slovakia (see Petrova, 2011, Lakova & Petrova, 2013). All known genera from the West and South Carpathians and Tunisia occur in the West Balkan of Bulgaria: *Longicollaria*, *Daciella*, *Dobeniella*, *Borziella*, *Carpathella*, *Almajella*, *Popiella*, *Chitinoideidella* where they were studied in Gintsi, Komshtitsa, Barlya and Dragovishtitsa sections. The Dobeni Subzone includes the species *Longicalaria dobeni*, *Daciella svinitensis*, *D. almajica*, *D. danubica*, *Dobeniella tithonica*, *D. colomi*, *Borziella slovenica*, *Carpathella rumanica* and *Popiella oblongata*. The Boneti Subzone is characterized by larger-sized species, such as *Chitinoideidella boneti*, *Ch. elongata*, *Ch. popi*, *Ch. hegarati*, *Dobeniella cubensis*, *D. bermudezi*, *Longicollaria insueta*, *Almajella cristobalensis*.

The largely accepted pre-Crassicollaria Tithonian chitinoideidellid zonation consisting of Dobeni and Boneti subzones (Grandesso, 1977; Reháková & Michalík 1997, Pop, 1998b) is pretty applicable to the chitinoideidellid vertical occurrence in Bulgaria. Grün & Blau (1997), however, proposed a bit “approved” zonation of the same part of Tithonian adding the Bermudezi Subzone above the Boneti Subzone. One can see that *Dobeniella bermudezi* FO is at different levels of Boneti Subzone, but we consider two allocated chitinoideidellid subzones as sufficient. It is a rare species which makes not sense in terms of direct correlation with magnetic chrons.

Acknowledgement: The research was supported by the Slovak Research and Development Agency under the contract APVV-14-0118 and bilateral contract SK-BG 2013-0012 (registered as DNTS 01/9 by the Bulgarian Science fund) and by the VEGA Projects 2/0034/16 and 2/0057/16.

References:

- Benzaggagh, M., Cecca, F. & Rouquet, I. 2010. Biostratigraphic distribution of ammonites and calpionellids in the Tithonian of the internal Prerif (Msila area, Morocco). *Palaontologische Zeitschrift*, 84, 2, 301–315.
- Borza, K. 1969. Die Mikrofazies und Mikrofossilien des Oberjuras und Unterkreide der Klippenzone der Westkarpaten. *Vydavat. SAV, Bratislava*, 124 pp.
- Grün, B. & Blau, J. 1997. New aspects of calpionellid biochronology: proposal for a revised calpionellid zonal and subzonal division. *Revue de Paléobiologie*, 16, 1, 197–214.
- Grandesso, P. 1977. Gli strati a Precalpionellidi del Titoniano e I loro rapporti con il Rosso Ammonitico Veneto. *Memoire di Scienze Geologiche*, 32, 1–15.
- Lakova, I. & Petrova S. 2013: Towards a standard Tithonian to Valanginian calpionellid zonation of the Tethyan Realm. *Acta Geologica Polonica*, 63, 201–221.
- Petrova, S. 2011. Ammonite and calpionellid biostratigraphy of the Berriasian, Valanginian and Hauterivian stages from the Western Srednogie and Western Balkan Mountains. *Unpublished PhD Thesis, Sofia*, 353 pp. (In Bulgarian)
- Pop, G. 1997. Révision systématique des chitinoïdelles Tithoniennes des Carpathes méridionales (Roumanie). *Comptes Rendus de l'Académie des Sciences Paris, Série II a*, 324, 931–938.
- Pop, G. 1998a. Nouvelles chitinoïdelles Tithoniennes des Carpathes méridionales (Roumanie). *Comptes Rendus de l'Académie des Sciences, Paris, Série de la terre et des planètes*, 326, 817–822.
- Pop, G. 1998b. Stratigraphic distribution and biozonation of Tithonian praecalpionellids and calpionellids from the South Carpathians. *Romanian Journal of Stratigraphy*, 77, 3–25.
- Reháková, D. 2002. Chitinoïdella Trejo, 1975 in middle Tithonian Carbonate pelagic sequences of the West Carpathian Tethyan area. *Geologica Carpathica*, 53, 6, 369–379.
- Reháková, D. & Michalík J. 1997. Evolution and distribution of calpionellids – the most characteristic constituents of Lower Cretaceous Tethyan microplankton. *Cretaceous Research*, 18, 493–504.
- Sallouhi, H., Boughdiri, M. & Cordey, F. 2011. Tithonian Chitinoïdellids of the South-Tethyan Margin of the Maghreb: New data from Tunisia. *Comptes Rendus Palevol*, 10, 641–653.