



Conodont biostratigraphy of a Carnian-Rhaetian succession at Csővár, Hungary

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The global biozonation of Upper Triassic conodonts is a question still under debate. The GSSPs of the Carnian-Norian and Norian-Rhaetian boundaries are not yet defined, thus every new data contributes to the solution.

In north-central Hungary the Csővár borehole exposed a nearly 600 m thick Carnian-Rhaetian succession of cherty limestones and dolomites that represent toe-of-slope and basinal facies. The aim of this study was to give a detailed biostratigraphical analysis of the borehole material based on conodonts. Although the amount of the material was quite low (half kg/sample) a rich conodont fauna was found, 37 species of 9 genera could be identified. The identified conodont zones and their main features are as follows:

- *Misikella ultima* Zone (upper Rhaetian): appearance of *M. ultima*;
- *Misikella posthernsteini* Zone (lower Rhaetian): appearance of *M. posthernsteini*, decrease in number of *M. hernsteini*;
- *Misikella hernsteini*-*Parvigondolella andrusovi* Zone (upper Sevatian): appearance of *Oncodella paucidentata* and *P. andrusovi*, presence of *M. hernsteini*;
- *Mockina bidentata* Zone (lower Sevatian): appearance of *M. bidentata*, diversification of genus *Mockina*, appearance of *M. hernsteini*;
- *Epigondolella triangularis*-*Norigondolella hallstattensis* Zone (upper Lacián): appearance of advanced forms of *E. triangularis*, presence of *E. uniformis*;
- *Epigondolella rigoi* Zone (middle Lacián): increase in number of *E. rigoi*, presence of advanced forms of *E. quadrata*;
- *Epigondolella quadrata* Zone (lower Lacián): *Epigondolella* dominated fauna, appearance of *E. rigoi*, *Carnepigondolella gulloae* and *Norigondolella navicula*, presence of *Metapolygnathus mazzai*;
- *Carnepigondolella orchardi* Zone (uppermost Tuvalian): *Carnepigondolella* dominated fauna, presence of few metapolygnathids, appearance of early epigondolellids.

Worldwide characteristic of the Carnian-Norian boundary interval is the sudden change from the *Carnepigondolella* to the *Metapolygnathus* dominated fauna which event could be observed in the studied succession as well. The typical Middle Norian conodonts are evidently missing from the borehole material, as it is quite usual in many other Norian successions around the world.

The studied conodont association shows more similarities to Pizzo Mondello (Sicily, Italy) rather than Black Bear Ridge (British Columbia, Canada) the two GSSP candidate sections for the base of the Norian. Comparing the conodont fauna of Csővár with the GSSP candidate sections for the base of the Rhaetian, the ranges of the key species better correlate with those of the Pignola-Abriola section (Italy), though it lacks two important species (*Mockina englandi* and *M. mosheri*) that are common in Csővár and at Steinbergkogel (Austria) as well.

The Csővár succession gives a unique opportunity for evaluating the biostratigraphical value of the different Upper Triassic conodont species which can help correlating different sections and clarifying the conodont biozonation. Temporal and spatial distribution of taxa could also identify the palaeogeographic relations.