



## **New biostratigraphic data regarding the Mesozoic carbonates from Piatra Leşului (Haţeg-Pui zone, Southern Carpathians, Romania)**

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The current study focuses on the micropaleontological and microfacies analysis of the Piatra Leşului, an outcrop composed mainly of Mesozoic carbonates. Located on the eastern part of Grădiştea Muncelului-Cioclovina Natural Park, Piatra Leşului is attributed to the “Pui Zone” (Stillă, 1971), representing a region where the sedimentary deposits of the Getic nappe are outcropping on relatively large areas. One hundred and sixty thin sections were analyzed from three different outcrops: Roşia-1, Roşia-2 and Taia, named after the nearby rivers that pass through the Piatra Leşului carbonates forming 150-200 meters long gorges.

The main microfossils from Roşia-1 section - *Frentzenella involuta* (Mantsurova & Gorbachik), *Protopenneroplis striata* (Weynschenck) and “*Solenopora*” sp., indicate the presence of the Upper Jurassic (Kimmeridgian–Tithonian) interval in most of the carbonates here.

In the Roşia-2 outcrop, situated in the southwestern part of Piatra Leşului, Cenomanian breccia/conglomerates are outcropping in small areas. Some of the elements within these deposits were sampled. The microfossil association is composed of dasycladalean algae - *Montiella elitzae* (Bakalova), *Salpingoporella muehlbergi* (Lorenz), foraminifera *Moulladella jourdanensis* (Foury & Moullade), *Paracoskinolina maynci* (Chevalier), microproblematic organisms - *Crescentiella morronensis* (Crescenti), corals, calcified sponges and microbial crusts. This association confirms an upper Barremian–lower Aptian age for the sampled elements from the Cenomanian breccia.

In the last section (Taia), situated in the center of Piatra Leşului, two areas can be distinguished: one with massive white limestones and the other with Cenomanian conglomerates. The microfossil association identified in both deposits (limestones and elements of the conglomerates) is dominated by dasycladalean algae and benthic foraminifera - *Salpingoporella annulata* (Carozzi), *S. pygmaea* (Gümbel), *Coscinoconus campanellus* (Arnaud-Vanneau et al.), *M. jourdanensis*, *Scythiolina camposauri* (Sartoni & Crescenti). Beside these, microproblematic organisms (*C. morronensis*), microbial structures, calcified sponges and bryozoans were also found. Based on the presented micropaleontological content, an upper Berriasian–lower Valanginian age can be assigned for the sampled carbonates.

In terms of depositional paleoenvironments, the main microfacies types from the Upper Jurassic deposits were assigned to platform-margin domains (upper slope and bioclastic shoals) while the Lower Cretaceous carbonates are defined by inner-platform sedimentary settings with scarce biota (bioclastic mudstones/wackestones) and platform-margin domains (bio-peloidal grainstone/rudstone).

In conclusion, more than twenty seven species of shallow-water biota were described from this area, most of them representing species previously unreported from this region. Based on these assemblages three age intervals were separated: Kimmeridgian–Tithonian (I), upper Berriasian–lower Valanginian (II) and upper Barremian–lower Aptian (III).

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### References:

Stillă A. (1971). Zona Pui și bazinul Haţeg – unităţi structurale distincte în Carpaţii Meridionali. D. S. Inst. Geol. Rom., vol. 58(5), p. 173-176.