CHANGES IN MIDDLE/UPPER MIOCENE CALCAREOUS NANNOPLANKTON ASSEMBLAGES (CENTRAL PARATETHYS; NAŠICE; CROATIA) – PALEOECOLOGY AND STRATIGRAPHY

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Calcareous nannofossils from the Badenian, Sarmatian and Pannonian sediments were investigated from three localities in the area of the cement factory "Našicecement": borehole B-1, Bukova Glava and Vranović.

Samples from borehole B-1 contain upper Badenian high diversified nannofossil assemblages with common *Coccolithus pelagicus* accompanied by reticuloefenstrids (*R. minuta*, *R. haqi*, *R. pseudoumbilica*), *Helicosphaera carteri*, *H. walbersdorfensis, Sphenolithus moriformis* etc. pointing to the full marine, euthrophic paleoconditions. The absence of *S. heteromorphus* allows the attribution into NN6 nannoplankton Zone.

Samples from Badenian/Sarmatian boundary from the locality Bukova Glava contains rich nannoplankton assemblage with bloom of *Calcidiscus pataecus*. This event, caused probably by suddenly changes in water salinity and chemistry on Badenian/Sarmatian boundary, was described from Slovenia, Bosnia and Hercegovina and Romania. Assemblages with blooms of *Cd. pataecus* occur directly above Badenian/Sarmatian boundary seems to be synchronous across the Central Paratethys and can be an useful marker to trace this boundary.

Sarmatian and Pannonian sediments from locality Vranović, was sampled from 18m thick section subdivided into 51 lithological units. Sediments are grouped into three facies: horizontaly laminated marls, marly limestones and limestones and tuff layer. In total 140 samples from this section were quantitative analysed. Five horizons with common diatoms and silicoflagelates occur in horizontally laminated marls. Limestones and whitish laminae within laminated marls with > 95 $CaCO_3$ contain blooms of ascidian spiculae. Within the Sarmatian part of the profile following units can be distinguished (from the bottom to the top):

– low diversity assemblage with dominance of *R. pseoudoumbilica* and *Calcidiscus leptoporus* accompanied by *Coronosphaera mediterranea* and small reticulofenestrids;
– assemblage dominated by *Cd. leptoporus* and *Cor. mediterranea*;
– assemblage with more than 90% of *Cor. mediterranea;*
– sediments containing high percentages of small reticulofenestrids, *Braarudosphaera bigelowii* and *Cor. mediterranea* with occasional blooms of *S. moriformis*;
– assemblages dominated by small reticulofenestrids and *Cor. mediterranea*.

Uppermost part of the section belongs to the Pannonian and contains abundant ascidian spiculae. Two sections from Vranović locality (approximately 80m thickness) described by PAVELIĆ et al. (2003) contain horizons with blooms of ascidian spiculae, *Isolithus* spp., and *Noelaerhabdus* spp.

PAVELIĆ, D., KOVAČIĆ, M., MIKNIĆ, M., AVANIĆ, M., VRSALJKO, D., BAKRAČ, K., TIŠLJAR, J., GALOVIĆ, I. & BORTEK, Ž. (2003): The evolution of the Miocene Environments in the Slavonian Mts. Area (Northern Croatia). In: VLAHOVIĆ, I. & TIŠLJAR, J. (eds.): Evolution of Depositional Environments from the palaeozoic to the Quarternary in the karst Dinarides and the Pannonian Basin, Field Trip Guidebook, 173–181. – 22nd IAS Meeting of Sedimentology – Opatija 2003, Field Trip Guidebook.

COMPARISON OF EARLY MIOCENE FLORA FROM LOCALITIES PLANINA AND POLJANSKA IN NORTHERN CROATIA

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Numerous specimens of Early Miocene macrofloral remains are stored in the Croatian Natural History Museum. Fossils has been collected from two localities: Planina and Poljanska, mainly by the curators of the Museum during field works since 19th century.

Locality Planina is situated on southeastern part of Medvednica Mt. near Zagreb. The plants have been preserved in marly sediments. The collection consist of almost 300 specimens. First detailed study of this flora was taken by Polić in 1935. Plant remains are mostly fragmentary preserved as impressions of leaves, fruits, seeds and branches. As a whole, the palaeoflora from this locality indicate a warm, subtropical climate. The most abundant species is *Myrica lignitum* (Unger) Saporta. Common elements are also Lauraceae, especially *Daphnogene*, and legume-type taxa. Species of *Pinus* are dominant conifers. The compositions of the flora suggest prevailing of subtropical elements over the arcto-terciary elements which are sparse.

Poljanska locality is situated on south slopes of Papuk Mt., about 20 km north-east from the city of Požega in Slavonia. The plant remains were collected in the last ten years and untill now collection has almost 200 specimens, mostly leaves which are generally well preserved. Most of the material consists of leaf imprints, but there are also some fruit/seed and branches. They were found in thin-layered marlstones. Floral assemblage suggest subtropical climate. The dominant species here is also *Myrica lignitum* (Unger) Saporta. Legume-type taxa are present in great number. *Pinus* and *Daphnogene* species are quite rare. Palaeotropical elements are prevailing over the arcto-terciary elements, but number of arcto-terciary elements are here in slightly higher amount.

Fossil plant assemblages on both sites show great similarity. The Planina collection include more species than Poljanska collection but shares most taxa. Paleosubtropical element prevails while the arcto-tertiary genera make only a fragment of the flora in both sites. Leaf size varies between notophyllous and micro-phyllous classes.

According to composition of both paleofloras it could be concluded that the zonation of flora was quite distinguishable with different types of habitats.

The most abundant species on both localities is *Myrica lignitum* (Unger) Saporta which is characteristic of subtropical areas and requires a moist habitat along the coast, suggesting