

Middle Miocene fossil assemblages and environments in the wider area of Veternica cave (SW Medvednica Mt., NW Croatia)

¹Marija Bošnjak, ²Bojan Karaica, ²Jasenska Sremac, ¹Davor Vrsaljko, ³Valentina Hajek-Tadesse, ²Antonija Gruber, ²Siniša Jeftinić, ⁴Nives Posedi

¹Croatian Natural History Museum, Zagreb, Croatia (marija.bosnjak@hpm.hr)

²University of Zagreb, Faculty of Science, Zagreb, Croatia

³Croatian Geological Survey, Zagreb, Croatia

⁴Faculty of Mining, Geology and Petroleum Engineering, Zagreb, Croatia

In SW Medvednica Mt., near the path to Veternica cave, ca. 16 meters high subvertical outcrop with sedimentary rocks is exposed (Fig. 1). Triassic dolomites in the base are transgressively overlain with dolomitic breccias. Breccias gradually pass into middle-grained breccia-conglomerates, and are later replaced with floatstones containing bivalve moulds and dispersed dolomitic cobbles. Dark grey marl above this layer contains molluscs, solitary corals, bryozoans, echinoids and trace fossils. Within this marly sequence, a layer (biostrome) of more compact calcareous marl with branching sessile colonial organisms (? *Porites* sp.) is clearly distinguishable in the field. Upper part of the column is characterized with light-grey coloured marls with molluscs, containing an intercalation of yellowish sandstones with bivalves and gastropods (Fig. 2). Bivalve fauna is present throughout the grey marls, getting more diverse in upper part of the section. Highest biodiversity occurs within the yellow sandstones, where the first gastropods were found.

Members of the suborder Rotaliina, Textulariina and Miliolina are recognized among benthic Foraminifers.

According to the fossil assemblage analysis, Middle Miocene (Badenian) age of deposits is determined (Kochansky, 1944; Papp & Schmid, 1985; Studencka, 1986). Sediment succession shows gradual change from shore facies to the deeper inner shelf, reflecting the general transgressive trends in the Central Paratethys, with a short regressive episode and high energy event during the deposition of the yellowish sandstone (Vrsaljko *et al.*, 2006).

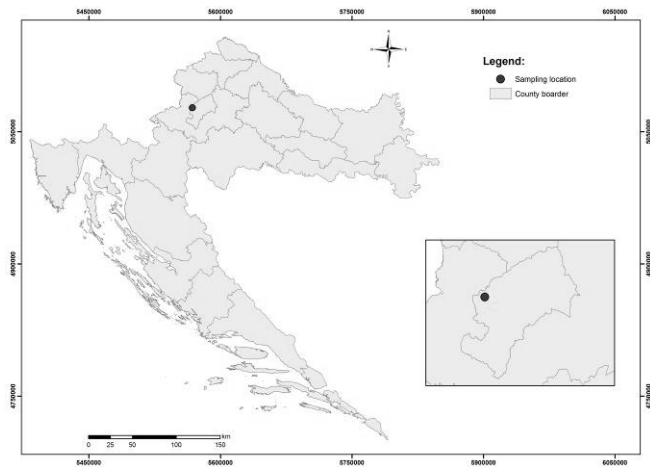


Fig. 1.: Geological setting of the studied area

Determined genera of macrofossils are: gastropods: *Ficus* and *Turritella*; bivalves: *Panope*, *Tellina*, *Lucinoma*, *Corbula*, *Venus* and *Chlamys*; corals: *Flabellum* and ? *Porites*. Additionally, a fragment of irregular echinoid was found. Deeply burrowed Tellinidae are the most abundant molluscs at the exposure, present in a variety of lithologies. Fossils from marls can be determined more easily, because they are preserved with shells. Fossils within yellow sandstones are preserved as casts and moulds.

Marls and sandstones also contain a rich microfossil assemblage: juvenile and fragmented Mollusca, Foraminifer, Ostracoda, Bryozoa, fish teeth and bones, echinoid spines and sponge spicules.

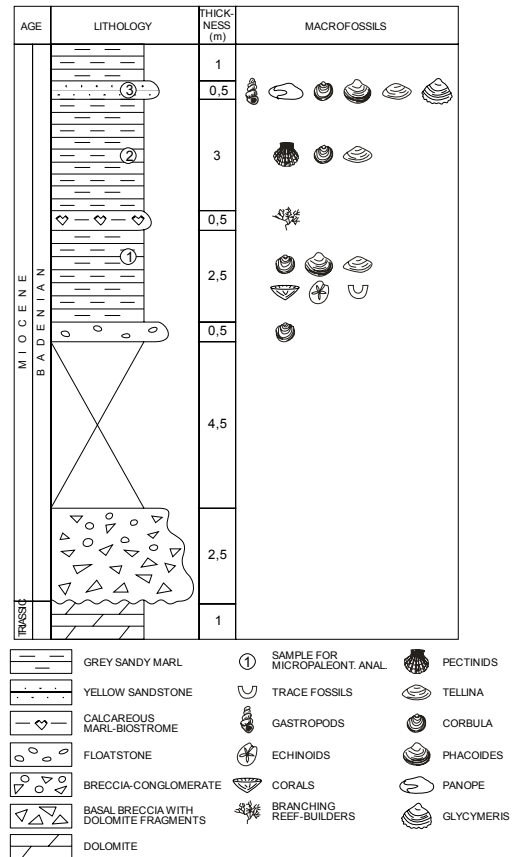


Fig. 2.: Lithostratigraphical column of the investigated outcrop

Kochansky, V. (1944): Vjestnik Hrv. drz. geol. zavoda i Hrv. drz. geol. muzeja, 2/3: 171-280.

Papp, A., Schmid, M. E. (1985): Abh Geol Bundesanst, 37, pp. 311

Studencka, B. (1986): Paleont Pol, 47: 3-128.

Vrsaljko, D., Pavelić, D., Miknić, M., Brkić, M., Kovačić, M., Hećimović, I., Hajek-Tadesse, V., Avanić, R., Kurtanjek, N. (2006): Geol Croat, 59/1: 51-63.