

The paleogeographic distribution of the coralline algae of the genus *Mesophyllum* in Central Paratethys during the Middle Miocene

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Despite their common occurrence, the potential of coralline algae is not yet fully exploited in paleoecological reconstructions. The reasons are mainly grounded in the taxonomic inconsistency caused by poor preservation or insufficient knowledge of the type material of many species, and confusion derived from the difficult recognition of the coralline three-phased life cycle in the fossil record. Specimens of fossil coralline algae from newly collected samples, and historical Schaleková's collection of middle Miocene Paratethyan limestone were studied under optical and scanning electron microscopes, revealing the occurrence of the asexuate, male gametangial, and carposporangial conceptacles of *Mesophyllum crassiusculum* here documented for the first time. Based on the recent emendation of *Mesophyllum* and consequent circumscription of the genera *Mesophyllum* sensu stricto and *Melyvonnea*, this is the first and oldest finding of a fossil *Mesophyllum* s.s. Moreover, we provide further evidence of the preservation potential of important diagnostic characters, such as the shape of epithallial and subepithallial cells, the shape of the conceptacle roofs, the number and shape of pore canals lining cells in the multiporate roof of the asexuate conceptacle chambers. The identification of *M. crassiusculum* led us to revision of the former occurrences of this genus. For purpose of application of emended

generic concept of *Mesophyllum* s.s. we analyzed published material and newly collected Badenian (Langhian–Early Serravallian) samples from Transylvania, Novohrad, Danube, Vienna and Carpathian foredeep basins also. Preliminary results show that (1) roof morphology and pore canal anatomy are available diagnostic characters at species and generic rank for fossil *Mesophyllum*, and (2) closely related tropical genus *Melyvonnea* is probably absent. Although our results suggest that tetra/bisporangial plants far exceed in amount the carposporophyte and gametophyte plants, further research would complete missing data and improve understanding of the paleogeographic distribution of the genus *Mesophyllum* s.s.

Keywords: Rhodophyta, Corallinophycidae, *Mesophyllum*, life cycle phases, taxonomy, Miocene, Slovakia.

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