ACTA PALAEONTOLOGICA POLONICA

The first identification of fossil *Mesophyllum* in accordance to the modern taxonomic concepts in coralline algae

Juraj Hrabovský, Daniela Basso, and Giovanni Coletti
Acta Palaeontologica Polonica 64 (4), 2019: 897-909 doi:https://doi.org/10.4202/app.00591.2019

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* sensu stricto. 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* in the middle Miocene of central Paratethys would deserve further biogeographic and paleoclimatic considerations that, however, are prevented by the incomplete exploration of the Paratethyan fossil record and the need of revision of other important type collections of closely related species.

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

Juraj Hrabovský [geoljuhr@savba.sk], Earth Science
Institute of the Slovak Academy of Sciences,
Dúbravská cesta 9, 840 05 Bratislava, Slovakia.
Daniela Basso [daniela.basso@unimib.itdaniela.basso@unimib.it] and
Giovanni Coletti [g.coletti@campus.unimib.it], Department of Earth and Environmental Sciences,
University of Milano-Bicocca, P.za della Scienza 4, 20126 Milano, Italy.

This is an open-access article distributed under the terms of the Creative Commons Attribution License (for details please see creativecommons.org), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.


Full text (1,396.7 kB)