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# Middle Miocene coralline algal facies from the NW Transylvanian Basin (Romania)

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The current study focus on the coralline algae from the Middle Miocene limestones in NW Transylvania to provide an outline for their systematics and palaeoecology. The investigated samples were collected from three carbonate outcrops: Vălenii Șomcutei, Ciolt 1 and Ciolt 2, named after the respective localities situated in the vicinity of the Țicău-Preluca Mountains (NW Romania).
The microfacies analysis suggest shallowing upward tendency in middle to proximal shelf environments. The coralline algae are present in the carbonate successions as detritus, branches, crusts and rhodoliths. The Vălenii Șomcutei section shows a depositional model where large and spheroidal rhodoliths develop in high energy conditions, most probably generated by storm waves. The sections from the Ciolt area are distinguished by the presence of green algae in association with the encrusting and geniculate coralline specimens. The identified species belong to Ord. Corallinales (Hydrolithon, Spongites, Lithophyllum, Jania), Hapalidales (Lithothamnion and Mesophyllum) and Sporolithales (Sporolithon). In the taxonomic identification of coralline red algae we used as many diagnostic features as possible, known from the description of present - day species, such as: shape of epithallial cells and roof morphology for melobesioids; presence/absence of a layer of elongated cells below sporangial compartments and number of cells in paraphyses for sporolithoids.
The identified coralline algal assemblages are discussed according to different paleoenvironmental conditions (paleo-depth, hydrodynamic energy) and then compared with similar fossil assemblages and recent analogs like modern maërl and rhodolith pavements.
The study of the calcareous nannoplankton assemblages from the Vălenii Șomcutei section [1] and the presence of previously dated tuffite intercalations of Dej Tuff [2] in the two sections near the Ciolt village confirm the Badenian age (NN5) of these deposits.

[1] Chelaru R., Săsăran E., Bucur I.I., Bălc R., Tămaș T. & Beldean C. (2011). Carbonate facies with rhodoliths from Vălenii Șomcutei (NW Transylvanian Basin). In: Bucur I.I. & Săsăran E. (eds) – 10th International Symposium on Fossil Algae, Cluj-Napoca, Abstract Book, p. 16.
[2] Szakács A., Pécskay Z., Silye L., Balogh K., Vlad D. & Fülöp A. (2012). On the age of the Def Tuff, Transylvanian Basin (Romania). Geologica Carpathica, vol. 63(2), p. 139-148.