

Sedimentary environment and development based on palynofacies and fluorescence analysis in samples from the Uhryński river section (Bystrica zone, Magura Nappe, Polish Outer Carpathians)

AGATA KACZMAREK¹, HARTMUT JÄGER^{2,3},
MARTA OSZCZYPKO-CLOWES¹ and NESTOR OSZCZYPKO¹

1 – Institute of Geological Science, Jagiellonian University, Oleandry 2a, PL- 30-063 Krakow, Poland

2 – GeoResources STC, Im Neuenheimer Feld 234, D-69120 Heidelberg, Germany

3 – Institute of Earth Sciences, Ruprecht-Karls-Universität Heidelberg, Im Neuenheimer Feld 234, D-69120 Heidelberg, Germany

The Magura Nappe is the innermost nappe of the Outer Carpathians of Poland, between the Pieniny Klippen Belt in the south and the Submagura Nappe and Silesian Nappe in the north (Oszczypko, 2006). In the Magura Basin five clearly defined sedimentary cycles can be distinguished. The opening of the basin in the middle Jurassic was followed by pelagic sedimentation with turbiditic sedimentation at the end. Based on lithological differences the turbiditic succession is divided into 3 stages: late Cretaceous-Paleocene, Paleocene-middle Eocene and late Eocene-Oligocene. The last sedimentary cycle in the Magura basin, is made of marine sediments of the piggy back basin stage, developed in the early Miocene (Oszczypko, 1992 a, b).

The studied samples were taken from Uhryński river section (Bystrica zone, Magura Nappe, Polish Outer Carpathians), assigned to the second and third turbiditic cycle based on nannofossil stratigraphy. The organic matter isolated from these samples can be divided into three groups, based on fluorescence colors of the marine plankton (dinocysts): (1) well preserved dinocysts with intense, bright yellow fluorescence colors, (2) well to moderately preserved dinocysts with less intense, dark yellow to orange fluorescence colors and (3) poorly preserved non-fluorescent dinocysts. The different type of fluorescence within one palynomorph group gives evidence of the different origin of this material, mainly based on differences in thermal history (maturation). Group 1 dinocysts indicate organic matter deposited in-situ in this basin. Group 2 dinocysts represent allochthonous, slightly more mature organic matter redeposited into this basin, while the dark coloured dinocysts of group 3 represent highly mature organic matter, related to strong tectonic overprint or multiple redeposition of the sediments. Therefore the detailed analysis of palynomorph assemblages gives clear evidence of different types of sediment redeposition within the turbiditic cycles of the Magura basin.

Acknowledgement: The first author express their profound gratitude to GeoResources STC at the Institute of Earth Sciences, Ruprecht-Karls-University of Heidelberg, for the comprehensive support in the laboratory and sample preparation.

References:

Oszczypko, N. 1992a. Late Cretaceous through Paleogene evolution of Magura Basin. *Geologica Carpathica*, 43, 333–338.

Oszczypko, N. 1992b. Rozwój basenu magurskiego w górnej kredzie i paleogenie. *Przeгляд geologiczny*, 7, 397–404.

Oszczypko, N. 2006. Pozycja polskich Karpat zewnętrznych w systemie alpejsko – bałkańskim oraz główne etapy rozwoju orogenu. In: Oszczypko, N., Uchman, A. & Malata, E. (Eds.): Rozwój paleotektoniczny basenów Karpat zewnętrznych i pienińskiego pasa skałkowego. *Instytut Nauk Geologicznych Uniwersytetu Jagiellońskiego, Kraków*, pp.133–164.

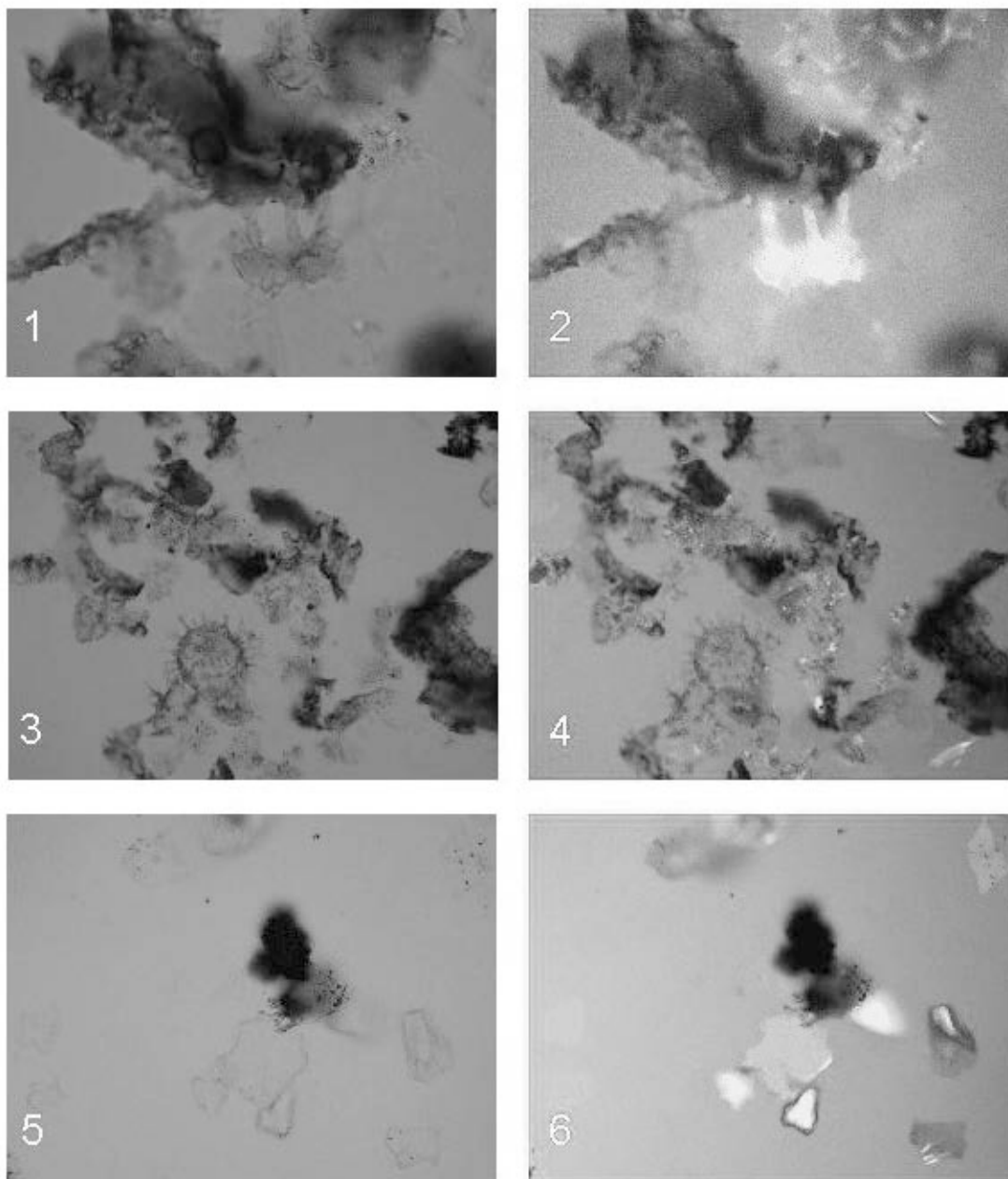


Table 1: Dinoflagellate cysts from samples from Uhryński river section (Bystrica zone, Magura nappe, Polish Outer Carpathians). **1, 2** - Well preserved dinoflagellate cyst, WP280 sample 7 - Uhryński stream: 1 - polarized nicols, 2 - fluorescence; **3, 4** - Moderately preserved dinoflagellate cyst, WP280 sample 7 - Uhryński stream: 3 - polarized nicols, 4 - fluorescence; **5, 6** - Poorly preserved dinoflagellate cyst, WP356 sample 10 - Uhryński stream: 5 - polarized nicols, 6 - fluorescence.