

Blueschist-facies radiolarites from the Bôrka Nappe (W. Carpathians) and their significance

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The Meliatic Superunit of the Inner Western Carpathians (Slovakia) includes rock complexes directly related to geological evolution of the Triassic–Jurassic oceanic basin known as the Meliata Ocean. Rocks with a real oceanic provenance forming olistoliths of ophiolitic rocks as constituents of former oceanic floor are embedded in the Jurassic accretionary mélanges. Ophiolites are represented by basic igneous rocks belonging to the uppermost part of ophiolite sequence (basalts, dolerites) in association with Triassic (Ladinian) red ribbon radiolarites, cherts and siliceous shales, frequently enriched in products of submarine Fe-Mn hydrothermal mineralization [1]. During the Upper Jurassic closure of the oceanic basin, a part of the Meliatic rock complexes, inclusive some mélanges underwent subduction metamorphism in the blueschist facies conditions [2]. They are regarded as components of an independent tectonic unit designated as the Bôrka Nappe. As a result of differences in exhumation rates, some formations of the Bôrka Nappe were affected by retrogressive metamorphism under the greenschist facies conditions. HP/LT metamorphosed radiolarites are accompanied by blocks of various types of pelagic sediments transformed to phyllites with paragonite and/or chloritoid together with blocks of glaucophanite with strongly depleted N-MORB geochemical signatures [3]. Presence of garnets, sodic pyroxenes and sodic amphibolites are typical features in the radiolarites. Spessartite component is prevailing in the composition of garnets (~77 mol %), andradite (~18 mol %) and grossular (~7 mol %) are present in less amount, whereas almandine (~1 mol %) and pyrope (~0.6 mol %) are negligible. Na-pyroxenes have been found only as inclusions in garnets, ca. 5 µm in size. Aegirine or manganian aegirine are their prevailing components (Ae ≥75 mol %, Jd ≥ mol%, Quad ≥ mol %, Mn ≥0.180 p.f.u.). Compositions of Na-amphiboles vary between magnesio-riebeckite and manganian magnesio-riebeckite. Finding of the HP/LT minerals in metaradiolarites is one of the significant criteria for their affiliation with the Bôrka Nappe. Other radiolarites belonging to the Meliatic Superunit did not undergo subduction-related metamorphism.

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- [1] Plašienka *et al.* (2019) *Swiss J. Geosci.*, **112**, 55-81.
[2] Faryad & Henjes-Kunst (1997) *Tectonophysics*, **280**, 141-156. [3] Ivan (2002) *Geol. Carpath.*, **53**, 245-256.