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Bojan Kostić, Maja Milošević, Danica Srećković-Batočanin



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100th Anniversary of the Carpathian-Balkan Geological Association

**XXII International Congress of the
Carpathian-Balkan Geological Association
(CBGA)**

ABSTRACTS

Geologica Balcanica

**Irena Peytcheva, Anna Lazarova, Georgi Granchovski,
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(Editors)**

**7–11 September 2022
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The Rudnik Mts, Serbia, is a volcano-intrusive complex and is located on the suture between passive Adria and active Europa margin zone. This northwest-southeast elongated area is composed mostly of the Albian-Cenomanian laminated clastics and carbonates in a proximal shelf environment and Cenozoic volcanics, as well. The sediments are metamorphosed on contact with different extrusive volcanic facies, quartzlatitic in composition.

U/Pb zircon dating from quartzlatite dykes shows 23.9 Ma age on the Oligocene–Miocene boundary. Contact-metamorphic rocks are investigated from the boreholes and include meta-conglomerates and meta-sandstones to skarn and hornfels facies. The intensity of metamorphism is in close relationship with protolith rock, hence metaclastic rocks have mineral associations composed of quartz, feldspars, sericite, actinolite-tremolite and epidote. More skarnized carbonate rocks contain calcite, epidote, zoisite, grossular/andradite/uvarovite garnets, pyroxene and vesuvianite. Grossular/andradite garnets show zonation from the core to the rim. The core composition is Grs_{36.4} and Adr_{61.8}, while the rim is formed of Adr₁₀₀. The grossular/uvarovite garnets composed of Grs_{61.7} and Uvt_{31.1} together with a slight content of andradite component zonation is absent. This skarnized zone is also a host rock for Pb/Zn mineralization with a small amount of scheelite, magnetite and cassiterite. The mineral assemblage with the occurrence of Ca garnets and vesuvianite indicate that the skarnization of calc-silicate rock was at 450 °C. Microthermometric measurements of temperature homogenization in garnet fluid inclusion reveals a temperature range of 373–392 °C. The hydrothermal phase overprint can be locally observed on contact between the ore vein-skarn and it is manifested by the increased quartz content and rock bleaching.

The appearance of rare uvarovite-like garnets is of special importance that allows the determination of a chromium source in this contact-metamorphism system. Proximity to the Vardar ophiolitic complex, geotectonic regime on a local scale and development of Cenozoic magmatism requires further investigation to better understand the evolution history of the Rudnik Mts. contact-metamorphic complex.

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