

Mantle melting and subsequent alterations recorded in the Upper Cretaceous basic magmatism from the western part of the Sava Zone (Croatia and Bosnia and Herzegovina)

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The Sava zone of the Dinarides marks the boundary between Adria microplate and Tisza segment of the European plate. This zone is characterized by Upper Cretaceous magmatic, metamorphic and flysch-type sedimentary rocks [1]. Along the Sava zone, inselbergs like Mt. Kozara [2], Mt. Požeška Gora [3] and Mt. Klepa [4] host occurrences of basic igneous rocks that were interpreted as results of regional extension. Our study focuses on the westernmost outcrop of Sava zone, Mt. Zrinska Gora, more precisely on the petrology and geochemistry of the basic magmatism in Kostajnica area, in the bordering area between Croatia and Bosnia and Herzegovina.

Outcrops of basic igneous rocks are rare and associated with *Scaglia*-type limestones of the Late Cretaceous age. Basalts have been hydrothermally altered; sericitization and albitization of primary plagioclase is detected in all samples while clinopyroxene is almost completely altered to chlorite and epidote. The most representative samples were analysed for major (XRF) and trace elements (LA ICP-MS). Due to the altered nature of samples, only immobile trace elements and REEs were used for petrogenetic interpretations. SiO₂ content is in the range of 41–46 wt.% with relatively high Al₂O₃ (14–16 wt.%) and TiO₂ (1.1–2.2 wt.%) content, MgO is in the range of 1.1–4.7 wt.%. All samples exhibit enrichment in HFS elements and LREEs. Trace elements characteristics and discriminant analysis point to enriched mantle source of Kostajnica basalts. Based on non-modal batch melting model using Gd/Yb vs. Dy/Yb, Kostajnica basalts were derived from 10 to 15% melting of spinel peridotite.

Compared with other products of basic magmatism within the Sava zone, Kostajnica basalts show the greatest resemblance to those from Kozara and Požeška Gora. Since these three areas are geographically relatively close and have similar geochemical characteristics, our preliminary results from Zrinska Gora indicate a shared or at least similar enriched source of Upper Cretaceous basic magmatism along the western part of the Adria-Tisza border zone.

[1] Schmid et al. (2020) *Gondwana Research*, 78, 308-374. [2] Ustaszewski et al. (2009) *Lithos* 108, 106-125. [3] Belak et al. (1998) *Geol Croat* 51/2, 163-174. [4] Prelević et al. (2017) *Terra Nova* 29, 145-153.