Early Cadomian metagranitoids in the metamorphic basement of the Sakar-Strandzha Zone, Bulgaria

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The Sakar-Strandzha zone (SSZ) [1] crops out on the territory in Bulgaria and NW Turkey. SSZ belongs to the Internal Balkanides, which is considered part of the Variscan orogen in the SE Europe. The SSZ is composed of metamorphic basement intruded by Paleozoic (Neoproteroic-Early Cambrian in Turkey) metagranites with Triassic-Jurassic metasedimentary cover.

We present LA-ICP-MS U-Pb zircon geochronology of a metaplagiogranite body emplaced in quartz-mica schists from the Westernmost outcrops of the SSZ. Redish brown euhedral prismatic zircon grains (60 - 100 μm) show core–rim textures on CL images with magmatic cores (mean Th/U 0.42) and dark and patchy metamorphic envelopes (mean Th/U 0.05). Two groups of concordant ages (10% filter) define 520 - 550 Ma for the magmatic cores (Concordia age 530.4 ± 6.3 Ma, MSWD = 1.7), and 287 - 364 Ma for the metamorphic rims (mean 322 ± 29 Ma). The magmatic ages are supported by concordant data of 540 - 560 Ma for 100 - 200 μm zircon grains size.

The Neoproterozoic–Early Cambrian ages indicate the presence of Cadomian metagranitoids in the Bulgarian part of SSZ basement. Analogous results were reported for metagranites in NW Turkey (534 - 546 Ma) [2]. The younger Late Devonian-Early Permian zircon rims mark a Paleozoic metamorphic event.

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[1] Ivanov (2017) *Sofia University, Publ. house,* 331.
[2] Şahin *et al.* (2014) *Gondwana Res.* **26**, 755-771.