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**U-Pb zircon dating, geochemistry and Sr-Nd-Pb isotopic ratios from
Azna-Dorud Cadomian metagranites, Sanandaj-Sirjan Zone of
Western Iran**

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Abstract

An integrated study of U–Pb zircon dating, whole-rock geochemistry and Sr-Nd-Pb isotopes was accomplished on metagranites from the Azna-Dorud region, Sanandaj-Sirjan Zone (SaSZ) of Iran. U–Pb zircon dating display that the crystallization of the protolith was occurred at age of 525.6±4 Ma (Early Cambrian). The new dating reveal that Iranian basement rocks with ages Late Neoproterozoic- Early Cambrian from SaSZ are similar to the Central Iran region. Zircons from the rocks show oscillatory zoning and high Th/U ratios (0.36–1.23) that imply their magmatic source. The zircons are considered as late magmatic phase on the basis of the geochemistry of their trace elements. The petrographic investigations show the mineral assemblage mainly consisting of quartz, plagioclase, alkali feldspar (microcline) and biotite, as well as accessory minerals of titanite, allanite, epidote and zircon. Based on the chemical composition, the rocks have high SiO₂ (71-75 wt.%), total alkali contents (Na₂O= 5.77 to 6.22%; K₂O= 0.34-0.39 wt. %) and low CaO and Al₂O₃ and are classified as metaluminous to slightly peraluminous (A/CNK= 0.95-1.01). The metagranites are depleted in Sr, Ba, P and Ti and enriched in Th and Ce relative to primitive mantle. These characteristics together with various geochemical discriminant diagrams offer a

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