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The comparison of characteristics of low-K and high-K granitoids in the Alvand intrusive complex

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Abstract: The Alvand intrusive complex is located in south of Hamedan in Sanandaj-Sirjan Zone. This complex is composed of mafic to felsic rocks such as gabbro, diorite, tonalite, granodiorite, granite, aplite and pegmatite. Granitoid rocks comprise major part of the complex. Granitoids can be divided into two categories: porphyroid granitoids and hololeucocratic granitoids. Porphyroid granitoids are K-rich but hololeucocratic granitoids are K- poor. Petrographical and geochemical properties of granitoid rocks are seperate and they are not produced from a unique magma sources. Hololeucocratic granitoids in contrast to porphyroid granitoids are rich in CaO, Na_2O and Al_2O_3 and poor in K_2O, FeO and MgO. They are not producted from fractional crystallization of other granitoids. ΣREE and $(La/Yb)_N$ in hololeucocratic granitoids have wide range than other rocks. Eu/Eu* ratios in Porphyroid granitoids is 0.38-0.61 in hololeucocratic granitoids is 0.52-11.31 and in aplites is 0.15-2.15. Porphyroid granitoids show negative Eu anomaly according to their crustal source. Considering that hololeucocratic granitoids are rich in Na_2O and CaO, they are plagioclase rich and hence show positive Eu anomaly related to replacement of Ca by Eu in this mineral. Aplites and pegmatites of the region have characteristics resemble to porphyroid granitoids and are probably generated by differentiation of them.

Keywords: *Alvand; granitoid; geochemistry; porphyroid; Eu anomaly.*

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