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Application of amphibole and plagioclase mineral chemistry for studying of Jebal-E-Barez granitoid genesis and geothermobarometry (Kerman province, Bam)

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Abstract: The Jebal-E-Barez Oligocene granitoid is located in the southeastern Bam, and in the southeastern part of the Urumieh-Dokhtar Magmatic Assemblage. Based on petrographic studies, this granitoid includes tonalite, granodiorite, granite and alkaligranite, which are composed of quartz, plagioclase, amphibole, biotite and alkali feldspar. The albite of plagioclase ranges from 38.38 to 67.26 percent, and its composition is oligoclase to andesine. Composition of calcic amphiboles varies from magnesiohornblende to tschermakite, which is feature of I type granite. The Na₂O amount and calc-alkaline nature of amphiboles indicate subduction zone for this granitoid, furthermore Al₂O₃, TiO₂ and Mg[#] amounts of amphiboles indicate crust and mantle mixing in the formation of granitoid magma. The geobarometry studies clarify that hornblende crystallization occurred in 2 kb, in addition to the geothermometry studies on aluminum of amphibole and hornblende-plagioclase pair minerals display crystallization temperature average of Jebal-E-Barez granitoid is 800 °C. Jebal-E-Barez granitoid *f*O₂ determine magma oxidation state.

Keywords: *Geothermobarometry; amphibole; plagioclase; Jebal-E-Barez granitoid; Bam.*

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