

## Petrology and geochemistry of Moshirabad granitoid body (South Ghorveh-Kurdistan)

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(Received: 8/3/2010, in revised form: 30/5/2010)

**Abstract:** Moshirabad granitoid body is located, as part of intrusive bodies, in Sanandaj-Sirjans zone and crops out elongated with east-west trend. Based on field observation as well as mineralogical characteristics, this suite consists of three main units; diorites, granodiorites and granites, followed by minor gabbros. Mineralogical and geochemical studies show that rocks of this suite are I-type, calc-alkaline and from the point of view of saturation degree of aluminum (ASI) are metaluminous to weakly aluminous. Variation diagrams trends of major and trace elements indicate a continuous compositional range and comagmatic origin for these rocks. Trends of compatible-incompatible elements indicate the important role of fractional crystallization in the genesis of these rocks. Depletion in Ta, Nb, P and Ti and enrichment in Ce, K, Th, Rb and Ba are obvious in the spider diagrams of these samples. The enrichment in LILE and depletion in HFSE reveal the I-type metaluminous magmatism of volcanic arcs (VAG). The low ratios of  $Al_2O_3/(FeO_{total}+MgO+TiO_2)$  and  $(Na_2O+K_2O)/(FeO+MgO+TiO_2)$  and the geochemical evidences of rare earth elements and trace elements show that the origin of initial magma is from the lower crust that created in a margin of convergent plate. Discrimination diagrams for tectonic setting also indicate the intrusion of this granitoid into the volcanic arc related to an active continental margin setting, so that with regard to geological history of this area, it can be attributed to subduction of Neo-Tethyan oceanic crust below Central Iran.

**Keywords:** *geochemistry, granitoid, Sanandaj-Sirjan, I type, lower crust, volcanic arc.*

متن فارسی اصل مقاله از صفحه ۵۶۳ تا ۵۸۰ در این شماره به چاپ رسیده است.

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