Petrology, geochemistry and tectonic setting of the Hamyerd iron deposit, northeast of Semnan

M. Hajibahrami, N. Taghipour*, GH. Ghorbani

Faculty of Earth Sciences, Damghan University, Damghan, Iran

(Received: 4/3/2017, in revised form: 1/7/2017)

Abstract: Hamyerd iron deposit is located about 74 km north east of Semnan, in the Jam area. This area is situated in the northern part of Central Iran structural zone. The outcrops are Middle-Eocene volcanic and pyroclastic rocks with andesite to andesite-basalt and tuff composition, which are intruded by some intrusive bodies of monzonite to monzodiorite composition in this area. Iron mineralization is occurred at the contact between intrusive bodies with volcanic rocks. Widespread presence of hematite with minor contents of magnetite, pyrite, barite, and calcite is the main characteristic of mineralization in Hamyerd deposit. Mineralization is occurred as veins and lenses of hematite with lesser amounts of magnetite. According to geochemical properties, the sub-volcanic intrusive body of Hamyerd is calc-alkaline and high K calc-alkaline and meta-aluminous in nature, belonging to I-type volcanic arc granitoids. Enrichment of LIL elements compared with HFS and negative anomaly of Nb and Ti and the samples plot within the VAG field suggest that the sub-volcanic intrusive body of Hamyerd has formed in a volcanic arc environment, related to the subduction zone.

Keywords: Petrology; Geochemistry; Volcanic arc; Hamyerd iron deposit; Semnan.

*Corresponding author, Tel-fax: 02335220091, Email: taghipour@du.ac.ir