

Mineralization, alteration and geochemical characteristics of host rocks in the Rangraz iron oxide-copper mineralization area, north Saveh, central part of Urumieh–Dokhtar magmatic arc

S. Dolatshahi¹, H. Zamanian^{*1}, A. Karimzadeh Somarin²

1-Department of Geology, Faculty of Natural Science, Lorestan University, Khoram Abad, Iran

2- Department of Geology, Faculty of Natural Science, Brandon University, Canada

(Received: 19/11/2018, in revised form: 16/3/2019)

Abstract: The Rangraz area is located about 20 km north of Saveh, which is situated in the central part of Urumieh–Dokhtar magmatic arc. The exposed rocks in the study area consist of a volcanic and volcanoclastic subvolcanic dikes and quartz monzodiorite intrusions. Mineralization in this area is mostly related to the silicic, argillic and chloritization alteration assemblages. The Rangraz area consists of 6 mineralized zones and mineralization appears in veins-veinlets and dissemination. The main ore minerals are chalcopyrite, specularite, pyrite, magnetite, bornite, chalcocite, covellite, and the gangue minerals are quartz, barite, and calcite. Supergene processes in the upper part of the mineralized zones have led to the formation of malachite, azurite, hydrated Fe and Mn oxides, covellite, chalcocite, and digenite. Gold in the study area does not occur as a free mineral, but the SEM observations revealed that chalcopyrite and specularite have a high content of gold. According to geochemical data, igneous host rocks in this area are calc-alkaline in nature and are formed at a magmatic- volcanic arc zone. In comparison with primitive mantle, they are enriched in LILE elements (Ba-k) and depleted in HFSE elements (Nb-Ti) and such pattern is similar to subduction environments. In addition, enrichment of LREE relative to HREE in chondrite normalized diagram show that the igneous rocks are formed in a subduction zone.

Keywords: *Urumieh–Dokhtar magmatic arc; Rangraz; mineralization; alteration; geochemistry.*

*Corresponding author, Tel: 09188120310, Fax: 0663312068, E-mail: hasanzamanian@yahoo.com