



Geology and petrographic studies of the hydrothermal altered rocks in the Qolqoleh gold deposit, Kurdistan province, Iran

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ABSTRACT

The Qolqoleh gold deposit is located in the northwestern part of the Sanandaj-Sirjan metamorphic – magmatic zone of Iran. This area is affected by NE – SW trending shear zone. On the basis of the field prospecting, granitic intrusive rocks and metavolcanic units are altered.

Propylitic, phyllic, carbonatization and silicic zones (Leonardos et al 1991; Sup So et al 1995) are the main type of alteration in the area. There are two types of silicification: a) silicification before deformation. b) silicification in close association with deformation. By previous studies (Aliyari et al 2009) it is revealed that gold mineralization is associated with the second stage of quartz veining.

Petrographic studies have indicated that altered intrusive rocks are composed of quartz, K-feldspar, muscovite, biotite, sericite, microcline, chlorite, iron oxide and calcite minerals.

Porphyroblastic, porphyroclastic, antiperthite, mortar are the most visible textures in the altered intrusive rocks. Also some ductile and brittle textures such as mylonite foliation, mica fish, quartz – sulfide veinlets and late barren carbonate veinlets crosscut the earlier K-feldspar porphyroblasts, are common in sheared altered rocks.

Pyrite and iron oxide are visible in the silicic veins, which formed in association with deformation zones. Pyrite has formed in two generations: euhedral pyrites that have orientation and anhedral disseminated pyrite, which formed in the later stage.

SEM observations indicated that gold mineralization has taken place in the host euhedral or anhedral pyrite so, gold mineralization could be related to deformation processes.

References:

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