



Mineralogy of Copper-Gold Deposit, Masjid Daghi Area, Jolfa, IRAN

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The Copper-Gold deposit of Masjid Daghi area is located in the Jolfa quadrangle (scale 1:100,000), East Azerbaijan Province, north-west Iran. The deposit, hosting by sub-volcanic bodies comprise of quartz monzonite composition whose intruded the Tertiary volcanic and volcanic-sedimentary rocks and turbidities. The Tertiary volcanic rocks consist of andesite, trachy andesite and quartz andesite. These mineral-bearing bodies related to Late Eocene sub-volcanic activities which intruded the Eocene volcanic rocks. Mineralography, XRD and SEM studies showed that the variations in mineralization of the area. The main agent of mineralization is the intrusion of Late Eocene sub volcanic bodies inside the Tertiary volcanic units. The mineralography studies revealed two main groups of mineralization as oxides and sulfides. The sulfide minerals formed as veins, vein lets and stock work. The economic minerals comprise of native gold, copper sulfides. The native gold occurring in siliceous veins and almost as inclusions inside the sulfides minerals such as chalcopyrite. The copper sulfides, contain pyrite, chalcopyrite and chalco-pyrrhoyite. Pyrite is main sulfide in the area and formed as disseminations, cavity filling and colloform. The amount of pyrite, chalcopyrite and chalco-pyrrhoyite increases with depth. Supergene alteration produced digenite, covellite, bornite, and malachite. The alteration occurred as potassic, phyllic, argillic and propylitic minerals. Furthermore, selective sericitic, sericitic-chloritic and alunitic alterations are seen around the mineralized veins. The mineralography studies indicate that pyrite is main mineral phase and native gold occurred in silicious vein almost as inclusions inside the sulfide mineral. Most of economic mineral formed as veins, vein lets, disseminated, cavity filling and colloform which related to intrusions of Late Eocene quartz monzonite bodies into the Eocene volcanic rocks and turbiditise. Some types of alterations such as potassic, phillic, argillic and prophylic in the area and silicious alteration near the mineralized veins, indicate probable existence of porphyry copper ore and imply epithermal gold in the Jolfa area, north west of Iran.

Key words: Masjid Dagi, Alteration, Pyrite, Sulfide, Mineralography, Stock work.