Geochemistry, mineralization and alteration of porphyry copper in the Grouh area, Sardouya (Kerman Province) with a view to the lack of supergene zone

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Abstract: The Grouh area is located about 19 km north-east of Sarduyeh city in Kerman Province. The major lithological units in this area include Eocene andesite and andesitic basalt. Oligo-Miocene intrusive units include diorite, quartz diorite and granodiorite; while pyroclastic units include tuff and breccia. The alteration in the Grouh area is remarkable due to the penetration of the intrusive masses into the volcanic rocks. Propylitic, phyllic and potassic alteration in the northern and southern parts of the range is widely spread. Copper ore deposits (chalcopyrite and malachite) are found in small outcrops in the microporous porphyry granodiorite in the northeastern region. Mineralization can be seen only in hypogen part, and evidence of supergene zone is very weak.. The presence of potassic alteration at the surface as well as the rough topography of the area indicates a high upsurge and severe erosion in the studied area, which possibly led to the transfer of copper to the downstream areas.

Keywords: Grouh; Sardouya; hypogen alteration; supergene alteration; copper mineralization.

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