The geology, mineralogy and geochemistry of clay minerals from Kalateh-No area (northwest of Gonabad)

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Abstract: The study area (Kalateh-No) is located in NW of Gonabad city in Khorasan Razavi Province. This area is located in geotectonic Lut Block zone. The rock types are mainly of volcanic and subvolcanics. The most important alteration zones are silisification, propylitic, argillic, serisitic and quartz-serisitic-pyrite. The mineralizations have formed by intrusion of hydrothermal fluids of monzodiorite porphyry and alteration of rocks along its path. The mineralogical compositions are quartz, illite, muscovite, montmorillonite, albite, orthoclase, gypsum and iron phases (pyrite and hematite). The chemical composition shows the high percentage of SiO₂ (average: 66/97%) and the amount of Alumina (Al₂O₃) is low (average: 17/67%). The meteoric water and hydrothermal fluids caused two types of supergene and hydrothermal clays, which supergene clays are deposited at the top clays hydrothermal clays.

Keywords: acidic Tuffs; Kalate no; quartz.

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