Geochemical investigations of Eğrigöz granitoid-hosted Cu-Pb-Zn mineralization at the northern margin of Tauride-Anatolide platform: A case study from Tavşanli zone, Kütahya, Turkey

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Tavşanli zone constitutes a separate belt from Kütahya-Bolkardağ Belt and located at the northern margin of Tauride-Anatolide platform. It is bounded by the Izmir-Ankara suture zones from N and Afyon zone from S. The study area has covered the area around Yukari Dolaylar village at southwest of Kütahya in Sudöşeği and Korucuk region along Dağardi district. This area is formed of from bottom to top Paleozoic metamorphic rocks, Jurassic limestone and Cretaceous Dağardı ophiolite mélange and later intruded by Eocene Eğrigöz granitoid rocks. It was affected by HP/LT metamorphism that was appeared in blueschist rocks forming the belt around Eğrigöz granite. During Eocene, the study area was affected by magmatic events represented by intrusion of Eğrigöz granite pluton into Dağardı ophiolitic rocks and other oldest rock units. Cu-Pb-Zn mineralization is essentially related to quartz veins stockwork which cut the granitoid rocks and/or associated with the alteration zones along the fault zone directed NW-SE within the highly altered granitoid rocks at the southern part of the study area. The main ore minerals are chalcopyrite, sphalerite, galena, covelite, digenite and pyrite disseminated in the alteration zones and their peripheries with quartz veins. According to the petrographic characters, the granitoid rocks are strongly foliated and mylonitized along the shear zones and are classified into; quartz monzonite porphyry, granite and quartz-rich granite. Based on geochemical studies, these granitoid rocks are heterogeneous ranging from calc-alkaline to alkaline nature for quartz monzonite porphyry and granite respectively. Also, they are peraluminous potassic and ultrapotassic rocks which pertaining to orogenic unfractionated S-type granites and A-type granites evolved in a volcanic-arc setting. In addition, the geochemical features of altered rock samples which hosted Cu-Pb-Zn mineralization revealed that they are differentiated into silicification, argillic and sericitization within highly sulphidized altered granitoid rocks.

Keywords: Geochemistry, Eğrigöz granitoid rocks, Cu-Pb-Zn mineralization, Tavşanli zone, Kütahya, Turkey.