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Geochemistry of Quaternary Basalts along The Sanandaj- Sirjan Fault Zone, in north of Dehgolan area, west of Iran

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The Study area is located in belt Takab-Ghorveh between east Longitude 48˚-47˚,30 'and northern Latitude 35˚,30'-35˚,50' in north east of Sanandaj city this area is part of Sanandaj- Sirjan structural zone. The lithologies of area include sedimentary, metamorphic and igneous rocks. The oldest rocks belong to metamorphic Cretaceous dark green sandy shale and slate. The younger ones include Quaternary andesitic basalt to alkali basalt, travertine and alluvium terraces and fans. The volcanic rocks are basic in composition (alkali basalt, hawaiite, mugearite). Petrographic and geochemical evidences, related diagrams show fractionation, magma mixing and crust contamination phenomena. By studying the major and trace elements variation diagrams, a trend of normal crystallization can be seen. Dispersion of samples with a different trend is may caused by accumulation of phenocrysts in some samples, the different. The spider diagrams indicate show low degree of partial melting in source, crustal contamination in an extensional environment.

Quaternary volcanism accompanied strike- slip- related transtensional deformation along small fault in Bijar area segment of The Sanandaj- Sirjan Fault Zone in northeast of Sanandaj. These volcanic rocks are represented by alkali basalts. They can be divided into 3 different sub-groups on the basis of their incompatible elements contents. A primitive mantle- normalized incompatible trace element diagram for 3 subgroups shows close similarity to typical OIB pattern. Highly fractionated REE pattern with no Eu anomaly are the main features of the alkali basalts and are comparable to alkaline volcanism in transtensional zone. Th/Nb, Th/Y, Nb/Y ratios and the primitive mantle-normalized trace element diagram suggests significant amount of crustal involvement for most of the alkali basalts erupted along The Sanandaj- Sirjan Fault Zone. Rupture of continental lithosphere by strike- slip- related transtentional deformation might have caused decompression partial melting of asthenospheric mantle and generating alkali basalts in this region.

Key words: alkali basalt, Quaternary, Volcanic, Contamination, Compression, transtension, asthenospher