



## Petrogenesis of Plio-Quaternary basalts in Mahabad, NW Iran

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The Mahabad1:100000 sheet is located mostly in the Kurdistan district on southern part of west Azerbaijan province between east Longitude 45° 30' - 46 °, and northern Latitude 36° 30' - 37°. Geographic position, geological and structural setting as well as general geological characters of this zone is very similar to Sanandaj-Sirjan zone.

Topography is dominated by mountainous terrain with an average elevation around 1800 meters. The oldest rocks belong to intrusive rocks, Mahabad Rhyolite. The younger ones include Plio-Quaternary basalt to alkali basalt, andesite, trachyte and alluvium terraces and salt marsh.

The young quaternary volcanoes occur in the southern range east and east of mahabad map sheet. The Plio-Quaternary volcanic lava are seen in the Borhan village [U+060C] It is built almost entirely of fluid lava flows. The volcanic rocks are basic in composition (basalt, tephrit basanite). The petrographic and geochemical evidences, related diagrams show fractionation. By studying the major and trace elements variation diagrams, a trend of normal crystallization can be seen crustal contamination in extensional environments. It seems that the original magma has an ultrabasic composition. Some of the phenocrysts of olivine, pyroxene & plagioclase are seen in thin sections. These rocks have microlitic porphyritic [U+060C] hyallo microlithic porphyritic textures in thin sections. On the basis of chemical analysis [U+060C] magma that has formed the rocks had alkaline nature. The ratio of nephelin norm is around 5.3 in this rocks. A primitive mantle- normalized incompatible trace element diagram shows close similarity to typical OIB pattern. All of documents denote that magma originated from an enriched asthenospheric mantle and low degree of partial melting in source.

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