

## **Petrogenesis of Plio-Quaternary basalts in Azerbaijan, NW Iran and comparisons them with similar basalts in the east of Turkey**

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**Abstract:** The Plio-Quaternary volcanic eruptions have made basaltic lavas in NW Iran and Azerbaijan. Basaltic lavas with prismatic structure cover the Plio-Pliostocene volcano-sedimentary or Quaternary alluviums. The studied regions are situated in Azerbaijan provinces in areas of Monnavar, Herris, Ahar, Kaleibar, Mahabad, Salmas, Maku, Marand, Sarab and Zunuz. The studied sample rocks are olivine basalt, trachy basalt and basaltic andesite. These rocks have microlithic porphyritic vesicular, hyallo microlithic vesicular porphery and doleritic textures in thin sections. On the basis of chemical analysis, magma that has formed the rocks had alkaline nature with a  $\text{Na}_2\text{O}/\text{K}_2\text{O} > 1$  ratio. The tectonic environment for the samples in discriminate diagrams is post collisional volcanic arc setting. The study of Rare earth elements patterns in diagrams show that, common dip of variations have descending trend and indicate basaltic rocks enriched in LREE and depleted in HREE. Other features of the diagrams are small negative anomaly for Eu, Ta, Nb and distinct positive anomaly for U, Th, La, Rb, Ba, and Cs. The study of rare earth elements patterns display that magma originated from an enriched asthenospheric mantle with garnet in source.

**Keywords:** *Basaltic eruptions, Azerbaijan, Plio-Quaternary basalts, Alkali olivine basalts*