

Mineral chemistry of clinopyroxenes of basalts from south-west of Khoy, NW Iran: determination of tectonic environment and formation conditions of basaltic rocks

A. Cheraghi, M. Ahangari*, M. Asadpour

Department of Geology, Faculty of Sciences, Urmia University, 57153, Urmia, Iran

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Abstract: The exposed volcanic rocks in south west of the Khoy area consist of basalts with minor amounts of plagioclase-phyric basalts. These rocks are composed of clinopyroxene plus plagioclase and plagioclase phenocrysts, respectively. The basaltic rocks are highly altered and contains high amounts of secondary minerals mainly chlorite and epidote. According to mineral chemistry, the composition of clinopyroxenes varies from diopside to augite. The clinopyroxenes are characterized by normal zoning and were formed from a primitive subalkaline magma. The studied clinopyroxenes were crystalized at pressure of 2 to 5 kbars, temperature ranging from 1100- 1150 °C and high oxygen fugacity. On the tectonic setting discrimination diagrams, the south west of Khoy basalts plot mainly in the areas of overlap between IAT, BABA and MORB. The comparison between studied basalts and basaltic rocks in the Khoy ophiolitic complex reveal that the south west of Khoy basalts might have been formed in back- arc basin settings.

Keywords: *basalt; clinopyroxene; mineral chemistry; tectonic environment; Khoy.*

*Corresponding author, Tel.: 04431942139, Fax: 04432755296, E-mail: m.ahangari@urmia.ac.ir