Study of clinopyroxenes in shoshonitic rocks of the Qaleh-Khargooshi area (west of the Yazd province) by EPMA and LA-ICP-MS

Ghodrat Torabi

Geology Department, Isfahan University, Isfahan, Iran
E-mail: Torabighodrat@yahoo.com

(Received 25/4/2006; received in revised form: 2/11/2006)

Abstract: Upper Eocene shoshonitic rocks have very good exposures in the Qaleh-Khargooshi area. These rocks have a wide range of SiO₂ content (absarokite to toscanite) and belong to fifth phase of Eocene volcanism in this area. Clinopyroxene is present in all members of shoshonitic group as phenocryst, but they have altered in toscanites. The study of clinopyroxenes composition shows that this mineral has been crystallized before occurrence of contamination and magma mixing. These minerals are enriched in REE, specially in LREE, and show negative anomaly of Eu. Primary magma of these shoshonitic rocks was formed by low degree melting of an enriched upper mantle source, and experienced the contamination and magma mixing during ascending through the thick continental crust.

Keywords: Shoshonite, Upper Eocene, Clinopyroxene, Qaleh-Khargooshi