

Mineralogy and geochemistry of metapicrites in the Bayazeh ophiolite (South of Khur-Central Iran)

N. Nosouhian^{*1}, G. Torabi¹, S. Arai²

1- Department of Geology, University of Isfahan, Isfahan

2- Department of Earth Sciences, Kanazawa University, Japan

(Received: 24/01/2012, in revised form: 30/05/2012)

Abstract: The Bayazeh ophiolite, with Paleozoic age, is located in the eastern margin of the Yazd Block (Central Iran). This ophiolite consists of serpentinized peridotites, metagabbro, ultrabasic metamorphosed dikes, metapicrite, serpentinite and metalistvenite. Rock forming minerals of the metapicrites in the Bayazeh ophiolite are olivine (completely altered to serpentine), clinopyroxene (diopside, augite), phlogopite, apatite, opaque (ilmenite, magnetite), amphibole (tremolite, actinolite, and tremolitic hornblende), chlorite (clinochlor, penninite) and prehnite. Main textures in these rocks are granular and poikiloblastic. Chemical composition of clinopyroxenes indicates that crystallization of clinopyroxenes has occurred during ascending of the magma. Geochemical analysis of the Bayazeh metapicrites conclude high values of MgO (25.8 to 28 wt %) and low values of SiO₂ (37.5 to 39.4 wt. %) that reveal their ultramafic nature. Presence of phlogopite as a primary hydrous mineral together with geochemical criteria of the studied rocks, reveal amphibole presence in the source rock of the Bayazeh metapicrites. Amount of REEs, enrichment from HFSEs and LREEs associated with high value of Mg# and Ni in these metapicrites indicate metasomatic enrichment of a mantle source. Metasomatic enrichment of this mantle source could be affected by fluids related to the Paleo-Tethys subduction. Geochemical characteristic of metapicrites in the Bayazeh ophiolite show that these rocks generated from 40% of partial melting of a metasomatized asthenospheric spinel lherzolite.

Keywords: *Ophiolite; metapicrite; Paleozoic; Paleo-Tethys; Central Iran; Bayazeh.*

متن فارسی اصل مقاله از صفحه ۳۰۳ تا ۳۱۸ در این شماره به چاپ رسیده است.

^{*}Corresponding author, Tel: (0311) 7932165, Fax: (0311) 7932152, E-mail: Nosouhian@gmail.com