

Petrography, mineral chemistry, thermobarometry and the determination of magmatic series in the Qazan enclaves, north of Isfahan, Iran

ALI GHASEMI¹, SEYED MOHSEN TABATABAEI MANESH²

¹Iranian Academic Center for Education, Culture and Research (ACECR), Isfahan, I.R. IRAN, A_ghasemi@acecr.ac.ir

²Department of Geology, Faculty of Sciences, University of Isfahan, Isfahan, Iran, Tabtablimp@gmail.com

The Qazan intrusion is a part of the Urumieh-Dokhtar magmatic belt. This pluton with probably Oligo-Miocene age, occurred due to intensive volcanic activity during the Alpine orogenic which is composed of granodiorite to tonalite rocks. The pluton is mainly composed of felsic minerals, such as quartz, plagioclase and alkali feldspar. Ferromagnesian minerals are biotite, amphibole and clinopyroxene. Dioritic enclaves are common in the pluton which vary extensively in diameters. Mineral chemistry of the pyroxenes from the diorite enclaves indicate augite - diopside composition that locally have undergone orolitic alteration. Chemical composition of the clinopyroxenes confirmed a subduction geological setting, the pressure of 7-14 kbars and the temperature of 1150-1200 °C as well as the presence of high percent water content in the magma. High oxygen fugacity and water content increment during magmatic evolution could represent that the clinopyroxenes were crystallized during magma ascent and within different pressures.

[Source] Xiong, F., Chang-Qian, M., Zhang J., Liu, B. (2012) The origin of mafic microgranular enclaves and their host granodiorites from East Kunlun, Northern Qinghai-Tibet Plateau: implications for magma mixing during subduction of Paleo-Tethyan lithosphere. *Mineralogy and Petrology* Volume **104**, Issue 3-4: 211-224.