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Investigation of petrological, mineralogical and geochemical properties of Javaherdasht gabbros (east of Guilan province)

Sh. Haghnazar[*1], S. Malakotian[2], Kh. Alahyarii[3]

1-Department of Geology, Faculty of Sciences, Islamic Azad University, Lahijan Branch
2-Department of Geology, Islamic Azad University, Damavand Branch
3-Department of Geology, Faculty of Earth Sciences, Shahid Beheshti University

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Abstract: The Javaherdasht gabbros cropped out in the northern part of the Alborz Mountains in east of Guilan Province. According to geochemical, petrographical and field studies, they are divided into two types of gabbros including non-layered and layered gabbros, and layered gabbros. Regarding the mineralogy, the first group gabbros include plagioclase, clinopyroxene, olivine and biotite as primary phases accompanying magnetite and titanomagnetite. The second groups of layered gabbros unlike the first group gabbros have no primary biotite and titanomagnetite .From the geochemical view of point, the first group have high contents of alkali oxides (Na_2O+K_2O), TiO_2 and $Fe_2O_3^{total}$ in comparision to the second-group gabbros. Compared with the first group gabbros, the second group layered gabbros have high contents of $Mg^{\#}$ and compatible elements (Ni ،Cr and Co). Our studies show that the first group gabbros have a clear elemental equilibrium with lower crust rocks and have been contaminated with them. Geochemical studies of major and trace elements show that they originated from the parental magma of the first group gabbros from a MORB mantle source with spinel facies. The second group gabbros show sign of relation to the melting which is originated from MORB mantle source with garnet facies. Studing the propotions of incompatible elements and patterns of incompatible elements of Javaherdasht basalts show that the first group gabbros are related to the Javaherdasht basalts and have similar petrogenetic relationships and similar geodynamic setting.

Keywords: *Javaherdasht, gabbro, MORB source, crustal contamination, geochemistry.*

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[*]Corresponding author, Tel.: (0281) 8371365,Fax: (0281)3780040, E-mail: Mohsennasrabady@hotmail.com