www.ggsnagpur.org

JGSR
Journal of Geosciences Research
Vol. 4, No.2, July, 2019
pp. 113-119

Field and Petrographic Appraisal of Dykes at Kilbury Range in Kumaun Lesser Himalaya, India

Deepa Arya and Dewakar Bawari

Department of Geology, Centre of Advanced Study, Kumaun University, Nainital-263 002, India
E-mail: arya.earth11@gmail.com

Abstract

The dykes in Late-Proterozoic-Early-Cambrian sequence of low-grade metamorphic sequences of Kumaun Lesser Himalaya were studied. The present work is focused on the mafic dyke present in Kilbury region of Nainital area in Kumaun Lesser Himalaya. This dykes intruded carbonaceous shale of Krol Formation. The contact of host and dyke is irregular rather sharp and marked by presence of numerous quartz and calcite veins intruding the host rock. Modally the dyke is orthopyroxene-gabbro with close anorthositic affinity and observed mineral assemblages are Pl + Opx + Cpx +Ap + Fe-Ti oxide ± Chl ± Bt ± Rt. The optically calculated anorthite content of plagioclase varies from An_{36} to An_{69}, which suggest variation from andesine to bytownite. The microscopic and textural interpretation suggests cotectic crystallisation of pyroxenes and plagioclase followed by apatite in the crystallisation sequence. The presence of Fe-Ti oxides in pyroxenes as inclusions and in interstitial spaces along with later plagioclase suggest relatively high oxygen fugacity prevailed during magmatic crystallisation. However, presence of minor biotite, chlorite and rutile marked their presence as an alteration product of pyroxenes due to later deformation either pre- or post-Himalayan event.

Keywords: Mafic dyke, magmatic crystallisation, cooling history, Kumaun Lesser Himalaya, India.