

## Geochemistry of the Kinshozan quartz diorite and associated pegmatite dykes, Ogawa-machi, Saitama Prefecture

Yoshinobu Kawano<sup>1\*</sup>

<sup>1</sup>Faculty of Geo-environmental Science, Rissho University

Quartz diorite and pegmatite occur around Kinshozan, Ogawa-machi, Saitama Prefecture (Ogachi et al.,1970; Makimoto & Takeuchi,1992).These rocks are called Kinshozan quartz dioritic body (Ogachi et al.,1970) and considered to be klippe lying on the Sambagawa Belt (Takagi et al.,1989; Takagi & Fujimori,1989). K-Ar hornblende age of 251+/-8 Ma (Ono, 1983) and FT zircon ages of 122 to 223 Ma for the quartz diorite (Watanabe & Suzuki, 1978; Suzuki and Watanabe, 1984), and K-Ar muscovite age of 252+/-8 Ma for pegmatite (Hayama et al, 1990) are obtained. These ages show that the Kinshozan body is Permian allochthonous granitic body. Sr initial isotopic ratios of the Kinshozan body are 0.70415 and 0.70406 (Shibata and Takagi, 1989).

Kinshozan body consists of three small masses, Fujiyama, Kinshozan and Kurumayama from east to west. Pegmatite dykes are not found out from Fujiyama mass, whereas some pegmatite dykes intrude in to the Kinshozan and Kurumayama masses. Constituent minerals of the quartz diorite are plagioclase, hornblende, quartz, potassium feldspar, biotite and opaque minerals. Pegmatite consists of quartz, plagioclase, potassium feldspar, white mica and garnet. SiO<sub>2</sub> of the quartz diorite was 50 to 63 wt%, and that of pegmatite was 75 to 78 wt%. Thus, although a compositional gap is looked at in SiO<sub>2</sub>, pegmatite is plotted on extension of the changing trend of quartz diorite in many major compositions. However, changing trends in SiO<sub>2</sub> vs. A.S.I. and SiO<sub>2</sub> vs. FeO\*/MgO diagrams are not necessarily conformable. In the trace element compositions, Zr and Zr/Nb show an upward tendency with increasing of SiO<sub>2</sub> in the quartz diorite, those of pegmatite are very low. The quartz diorite is characterized by low K<sub>2</sub>O/Na<sub>2</sub>O and Rb/Ba ratios, and those ratios of pegmatite are large. In MORB normalized spidergrams, Nb vs. Y and (Y+Nb) vs. Rb diagrams, the quartz diorites and pegmatites suggest feature of an island arc igneous rocks.

If origin of pegmatite differs from that of the quartz diorite, it is thought that the pegmatite was originated by partial melting of crustal materials. If so, it can be considered that tectonic setting for the Kinshozan body was active continental margin.

Keywords: Kinshozan, Saitama Prefecture, geochemistry, quartz diorite, pegmatite