

## Fe<sub>2</sub>O<sub>3</sub>/FeO ratios and K-Ar ages of the Tadamigawa granitic rocks, northeastern Japan

Yudai Tanioka<sup>1\*</sup>, UEBAYASHI, Sanshiro<sup>2</sup>, Motohiro Tsuboi<sup>2</sup>

<sup>1</sup>Sci. Tech., Kwansai Gakuin Univ., <sup>2</sup>Sci. Tech., Kwansai Gakuin Univ.

The early Paleogene Tadamigawa granitic rocks are located around Hinoemata village in the southwestern part of Fukushima prefecture, northeastern Japan. The granites are divided into two rock types, the Tadamigawa granite and the Hinoematagawa granite. The Hinoematagawa granite is medium-grained biotite-hornblend granite. The Tadamigawa granite is coarse-grained biotite granite and it is characterized by the phenocryst of K-feldspar. On the field occurrence, the Tadamigawa granite intrudes into the Hinoematagawa granite. Because these granites are located at high-mountain area, precise field research has not been attempted. In this study, 7 samples of the Hinoematagawa granite and 34 samples of the Tadamigawa granite were analyzed for major, minor and REE compositions by XRF and ICP-MS, respectively. Moreover, we obtained K-Ar ages of biotite isolated from both granites, and Fe<sub>2</sub>O<sub>3</sub>/FeO ratios by titrimetry with potassium permanganate.

SiO<sub>2</sub> contents of the Hinoematagawa granite and the Tadamigawa granite range from 59.6 to 69.4 wt.% and from 62.8 to 74.6 wt.%, respectively. K-Ar ages of the Hinoematagawa granite and the Tadamigawa granite are 102.3 Ma and 102.7 Ma, respectively. These ages are much older than 67 Ma of the previous K-Ar age data obtained by Kawata and Ueda (1966). Both of granites may be formed at same time by Cretaceous igneous activity and generated from the same magma origin because they show similar trend on the Harker's diagram. Those granites are I type because almost all samples show low degree of alumina-saturation (A/CNK < 1.1). REE abundance patterns of all samples normalized by chondrite show high-LREE pattern. Many samples show negative Eu anomaly (Eu/Eu\* = 0.24-1.01), and the value of Eu anomaly increase with decreasing anorthite content calculated by CIPW norm. The value of Eu anomaly might be concerned with the crystallization differentiation of the original magma. The large Eu anomaly of the Tadamigawa granite shows much differentiation of the granitic magma. The anomaly is caused by the differentiation of anorthite in the Tadamigawa granite. The Hinoematagawa granite shows low Fe<sub>2</sub>O<sub>3</sub>/FeO ratio (0.28-0.39). It may be generated from the magma which has low oxygen fugacity.

Keywords: Fe<sub>2</sub>O<sub>3</sub>/FeO ratio, K-Ar age, REE, Granite, Tadamigawa, Hinoemata