

REE and Sr and Nd isotopic compositions of granitic rocks from the Hua Hin area, Thailand

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The granitic rocks are widely distributed in the Hua Hin area, Thailand. This area is located in the Central Province (Cobbing, 2011) consists mainly of S-type granitic rocks, whose ages range from early Late Triassic to late Early Jurassic (ca. 230-180 Ma) (Sone and Metcalfe, 2008). The petrogenesis of these granitic rocks is explained by partial melting of the Sibumasu crust subducted beneath the Palaeo-Tethys accretionary complex (Sone and Metcalfe, 2008). However, characteristic of source material of granitic rocks in the Hua Hin area are poorly understood. In this paper, we report REE and Sr and Nd isotopic compositions of granitic rocks from this area.

The granitic rocks in the Hua Hin area are composed of foliated granitic rocks and non-foliated granitic rocks. The formers are the Hub Kapong Gneissic Granite, Hua Hin Gneissic Granite and Pran Buri Gneissic Granite. The Hub Kapong and Hua Hin Gneissic Granites are partly weakly mylonitized K-feldspar porphyritic biotite granite. The Hub Kapong and Hua Hin Gneissic Granites give Rb-Sr whole-rock isochron ages of 202 \pm 22Ma and 209 \pm 14Ma, respectively (Yuhara et al., 2011). Kawakami et al. (2014) reported 219 \pm 2Ma and 185 \pm 2Ma U-Pb zircon ages from the Hua Hin Gneissic Granite, and interpreted that these ages represented the timing zircon crystallization and regional metamorphism of upper amphibolite facies grade, respectively. The Pran Buri Gneissic Granite is mylonitic biotite granite. Non-foliated granitic rocks are stock bodies intruded into the Hub Kapong Gneissic Granite, and composed of biotite to two-mica granite. A body of non-foliated granitic rocks gives an Rb-Sr whole-rock isochron ages of 84 \pm 13Ma (Yuhara et al., 2011). These granitic rocks have peraluminous chemical composition (Yoshimoto et al., 2010).

Chondrite-normalized REE patterns of these granites are enriched in light REE (LREE) and depleted in heavy REE (HREE). These granites show Eu anomalies. Non-foliated granitic rocks show flat patterns in HREE. Initial epsilon Sr and Nd values of the Hub Kapong and Hua Hin Gneissic Granites are 270 to 340 and ?15.6 to -8.8, and 240 to 360 and ?13.5 to -9.3, respectively. Model epsilon Sr and Nd values of the Pran Buri Gneissic Granite calculated by 209Ma are 510 to 1040 and ?8.7 to -6.9. Initial epsilon Sr and Nd values of non-foliated granitic rocks are different every bodies, and are 970 and -11.2, 440 and -10.6, 60 and -9.8, respectively.

Keywords: REE composition, Sr and Nd isotopic compositions, granitic rocks, Hua Hin, Thailand