

## Chemical compositions of the Shikanoshima basic rocks in the Osaki, Shikanoshima Island, northern Kyushu

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Many mafic enclaves are in the Shikanoshima Granodiorite in the Shikanoshima Island, north Kyushu. It is thought that these enclaves are inclusion from the Shikanoshima basic rocks (Karakida, 1967; Karakida et al., 1994). Yoshikura et al. (1999) pointed out existence of syn-plutonic mafic dykes and mafic microgranular enclaves (MME) in the Shikanoshima Granodiorite. Yuhara and Uto (2007) pointed out that mafic bodies were magmas from high-Mg andesitic magma included by the Shikanoshima Granodiorite magma. Yuhara and Goto (2008) reported new field occurrence, petrography of the Shikanoshima basic rocks at the Osaki, northwestern part of the Shikanoshima Island. We report chemical compositions of those rocks and discuss relationship between geneses.

The Shikanoshima Granodiorite is widely distributed at the Osaki, and contains a body of the Medium-grained Quartzdiorite, the Shikanoshima basic rocks. The tonalitic rocks are exposed on the northern side of the Medium-grained Quartzdiorite. They consist of the Heterogeneous Tonalite, Porphyritic Quartzdiorite, Foliated Tonalite and Biotite Tonalite. The Heterogeneous Tonalite is medium-grained massive biotite hornblende quartzdiorite to tonalite. This always contains many mafic enclaves with irregular shape. Some enclaves include hornblende xenocrysts from host tonalite. The field occurrence of mafic enclaves indicates that those enclaves are MME. The Porphyritic Quartzdiorite is fine-grained biotite hornblende quartzdiorite, with porphyritic texture. The Foliated Tonalite is medium-grained porphyritic foliated biotite hornblende tonalite. The Biotite Tonalite is medium-grained foliated biotite tonalite. The rock facies similar to the Foliated Tonalite are distributed in the Shikanoshima Granodiorite nearby the Shikanoshima basic rocks and Quartzdioritic Dykes.

SiO<sub>2</sub> contents of the Heterogeneous Tonalite, Porphyritic Quartzdiorite, Foliated Tonalite and Biotite Tonalite are 53.9-62.0wt%, 53.6-54.1wt%, 58.4-62.6wt% and 58.5wt%, respectively. In Harker variation diagrams, the Heterogeneous Tonalite plot between the Shikanoshima basic rocks and Quartzdiorite dyke, and the Foliated Tonalite plot between the Shikanoshima Granodiorite and Quartzdiorite dyke. Porphyritic Quartzdiorite and Biotite Tonalite plot within range of the Heterogeneous Tonalite and Foliated Tonalite, respectively. Those chemical characteristics also suggest that the Heterogeneous Tonalite and Porphyritic Quartzdiorite were formed by mixing of the Shikanoshima basic rocks magma and dioritic magma, and that the Foliated Tonalite and Biotite Tonalite were formed by mixing the Shikanoshima Granodiorite magma and the Quartzdioritic Dykes magma.

**Keywords:** Shikanoshima basic rocks, Chemical compositions, Magma mixing, Shikanoshima Island, Northern Kyushu