

## **GEOCHEMISTRY OF PLUTONIC BODIES OF TSAGAAN TSAHIR UUL, MONGOLIA SPECIAL STUDY ON RELATION WITH GOLD MINERALIZATION**

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The Tsagaan Tsahir Uul area is located at the southwestern part of Mongolia, 700 km southwest from capital Ulaanbaatar. Geology of the district is well known for gold mineralization and it is southeastern part of the Bayanhongor gold metallogenic belt. The area is mainly composed of Late Cambrian granitic rock, in association with Carboniferous dioritic stock, dyke of lamprophyre, and dyke of quartz porphyry. The granitic rock is homogenous, and it is divided into two types according to its biotite content: two mica granite and biotite granite. The granite is medium to high-K calc-alkaline and peraluminous. The diorite and lamprophyre are high-K calc-alkaline and metaluminous, while the quartz porphyry is medium to high potassium calc-alkaline. Major element contents show smoothly singular trend with increasing silica content for the granitic and the other plutonic bodies. On N-MORB normalized spider diagram, the granite and the quartz porphyry are enriched in incompatible elements and depleted in compatible elements. The diorite and the lamprophyre are enriched in incompatible elements. The present day  $^{87}\text{Sr}/^{86}\text{Sr}$  isotope ratios are: 0.7140 for two mica granite, 0.7115 for biotite granite, and 0.7231 for quartz porphyry. Initial  $^{87}\text{Sr}/^{86}\text{Sr}$  isotopic ratio for the diorite is  $0.7053 \pm 0.0004$ , and for the lamprophyre  $0.7055 \pm 0.0014$ . Major element geochemistry and  $^{87}\text{Sr}/^{86}\text{Sr}$  isotope ratio suggest S type characteristics for the granitic body and quartz porphyry, and I type characteristics for the diorite and lamprophyre. Intimate chronological relation should exist between the gold mineralization and the diorite stock as well as lamprophyre dyke.