Selenium geochemical characteristics of Ruoergai plateau wetland, eastern margin of the Qinghai-Tibet Plateau, Southwest China

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Ruoergai wetland is a typical plateau wetland ecosystem in the eastern margin of the Qinghai-Tibet Plateau, southwest China. This area is one of five big pastoral areas in China. On the other hand, the people's health and the development of livestock suffer from selenium deficiency symptom[1].

Here we developed a method for determination of selenium in enviroment sample by high performance liduid phase inductively couped plasma-mass spectrometry (HPLC-ICP-MS)[2]. The selenium of rock, soil, water and plant in this area were researched. Conclusions are as follows.

The selenium of rock in this area is generally lower than the crustal abundance. The selenium of the water is much lower than normal drinking water. The selenium of plant is between selenium deficiency areas and normal areas. The selenium of increased with organic matter content in soil.

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Fluid and melt inclusions in the Wulaga gold deposit, Heilongjiang, China

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The Wulaga gold deposit, located in northeastern China, is a controversial deposit for its ore genesis[1-3]. The ore bodies are mainly hosted in cryptoexplosive breccia zone within Tuanjiegou plagioclase granite-porphyry of 106~108Ma[4], and in the layer fractures of metamorphic Heilongjiang group. Gold mineralization can be divided into 3 stages: pyrite- early white chalcedony quartz stage (stage I), smoky gray chalcedony quartz - polymetallic sulfide stage (stge II), and carbonate -quartz stage (stage III). Fluid inclusions in stage I are mainly aqueous solutions with homogenization temperatures (Th) of 154°C~355°C, mainly in 230°C~270°C. Salinities of fluid inclusions are 1.3%~8.2%NaCl eqv. Ths of fluid inclusions in stge II are 159°C~196°C, with salinities of 2.2%~3.2%NaCl eqv. Those in stage III are mainly in 170°C~230°C, with salinities of 0.5%~2.9%NaCl eqv. Ore-forming fluids in the main mineralization stages are characterized by mid to low temperatures, low salinities, and lack of CO_2, which is similar with epithermal deposits related with continental volcanic-subvolcanic rocks. There are three types of inclusions in quartz phenocryst of plagioclase granite-porphyry, that is, melt inclusions, primary L-V and L-V-S inclusions, as well as secondary L-V inclusions. Glassy melt inclusions are characterized by acid magma (SiO_2 =69.5~73.8%), with the trapping temperatures higher than 800°C. Secondary L-V inclusions in quartz phenocryst have 210°C~350°C of Th, which are coincided with those of mineralizing stage I (Q1), while salinities (5~7wt%NaCleqv.) are slightly higher than those of Q1. Melt and fluid inclusion study shows that gold mineralization is related with plagioclase granite-porphyry, and it is possible for silicate magma to produce salt-aqueous solution through immiscibility in magmatic differentiation.

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