



The enhancing of Au-Ag-Te content in tellurium-bearing ore mineral by bio-oxidation-leaching

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The purpose of this study is to enhance the content of valuable metals such as Au-Ag-Te in tellurium-bearing minerals by bio-oxidation-leaching. It was confirmed that pyrite, chalcopyrite, sphalerite and galena were produced together with tellurium-bearing minerals including hessite, sylvanite and tellurobismuthite from ore minerals and concentrates through microscopic observation and SEM/EDS analysis. In a bio-oxidation-leaching experiment, with regard to Au, Ag, Te, Cu and Fe, the changes in the amount of leaching and the content of leaching residues were compared and analyzed with each other depending on the adaptation of an indigenous microbe identified as *Acidithiobacillus ferrooxidans*. As a result of the experiment, the Au-Ag-Te content in tellurium-bearing ore mineral was enhanced in the order of physical oxidation leaching, physical/non-adaptive bio-oxidation-leaching and physical/adaptive biological leaching. It suggests that the bio-oxidation-leaching using microbes adapted in tellurium-bearing ore mineral can be used as a pre-treatment and a main process in a recovery process of valuable metals.

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