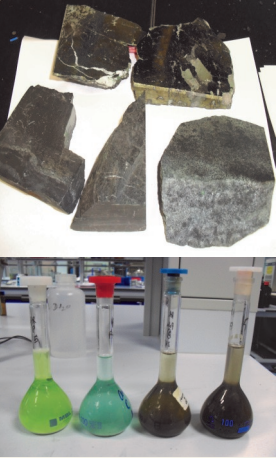


A Novel Approach for Recovery of Copper and Precious Metals From Low-grade Ores Using a Combination of Microbial Oxidation and Bioleaching Techniques

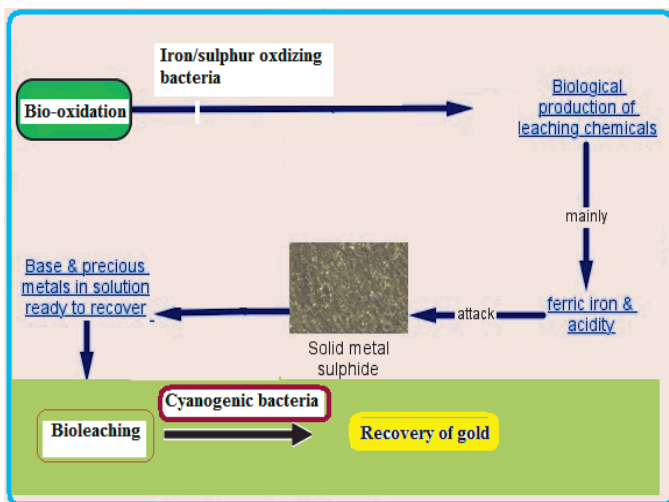
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Co-Principal Investigator: Prof Ong Say Leong



The demand for bioleaching technology is increasing due to two important factors, mainly depletion of high-grade ores and stricter enforcement of anti-pollution laws. Minerals, Metals and Materials Technology Centre is working on the development and optimization of a combined bacterial leaching process (bio-oxidation and bioleaching) for the recovery of precious metals from low-grade ores.

Our Current Research

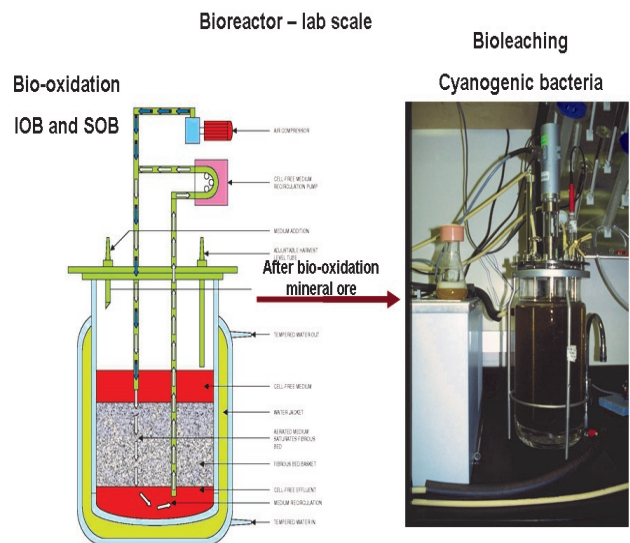
Research will focus on developing a bio-oxidation technology for microbially-induced oxidation of metals in low-grade ores to their corresponding oxides and then separating and concentrating the precious metals of interest through bioleaching. Indigenous acidophilic and cyanogenic bacteria will be identified using an advanced molecular technique (16S rDNA gene analysis) and their bioleaching performance evaluated quantitatively. The process will then be optimized for achieving maximum recovery of precious metals of interest, such as Cu, Ag and Au.



Proposed methodology for bio-oxidation and bioleaching process for copper

Industry significance

In bioleaching, the extraction of precious metals from its ore has been of great attraction worldwide. Conventional treatment (cyanidation process) tends to be expensive and chemical intensive. Consequently, the development of economical, effective and environmentally benign recovery of precious metals is needed. It is anticipated that in the coming years several new commercial-scale bioleaching plants will be developed and installed for precious metals recovery with high extraction efficiency.



Combination of Bio-oxidation and bioleaching of precious metals from mineral ore in bioreactor lab scale

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