

M3TC SEMINAR ANNOUNCEMENT

TOPIC	Bioleaching of Precious Metals From Mineral Ores	
SPEAKER	<p>O.P. Karthikeyan Minerals, Metals and Materials Technology Centre & Department of Civil and Environmental Engineering National University of Singapore, Singapore</p>	
CHAIRER BY	A/Prof Rajasekhar Balasubramanian	
DATE	Monday - 30 January 2012	
TIME	3.00 to 4.30 pm	
VENUE	EA-06-03 , Faculty of Engineering, National University of Singapore NUS Campus Map	
SYNOPSIS	<p>Mining industries are currently in need of a flexible, robust, cost-effective and environmentally-benign approach for the recovery of precious metals from the mineral ores. Bio-oxidation combined with bio-leaching of precious metals from mineral ores is found to be a cost effective technology that can add value to the mining industries. However, the process improvements in terms of improved reactors configurations, operational sequences, the application of novel microbes and the speed of extraction are given particular importance in recent years. The present research work intended to provide technological solutions for improved metal recovery from chalcopyrite ores using pure and mixed consortium of acidophilic iron/sulfur oxidizing cultures in two different bioreactor configurations.</p> <p>The air uplift and continuous stirred tank reactors of 5L capacity were employed individually under operating conditions of single stage-suspended and two stage-percolation modes. A mixed consortium of <i>Acidithiobacillus caldus</i>, <i>Leptospirillum ferriphilum</i>, <i>Leptospirillum ferrooxidans</i> and <i>Sulfobacillus thermosulfidooxidans</i> was examined for efficient extraction of metals from chalcopyrite mineral ore. The leaching patterns of copper (Cu), iron (Fe), zinc (Zn) and silver (Ag) were studied during different time intervals of bioreactor operations and compared between the two reactor systems.</p> <p>The preliminary results suggest that the air up-lift bioreactor performs better than the continuous stirred tank reactor system for the extraction of Cu from the chalcopyrite ore. The practical implications of this study will be discussed.</p>	
BIOGRAPHY	<p>O.P. Karthikeyan completed his research in the field of solid waste management from the Centre for Environmental Studies, Anna University, Chennai, India. He is currently a post-doctoral research fellow in M3TC, National University of Singapore, Singapore, and works on the project entitled “<i>Recovery of Copper and Precious Metals from Low-grade Ores Using a Combination of Microbial Oxidation and Bioleaching Techniques</i>”. Prior to joining NUS, he worked at Hong Kong Baptist University, Hong Kong and at the Asian Institute of Technology, Bangkok, Thailand.</p> <p>He also worked on various research projects, funded by the Central Pollution Control Board (CPCB), India, and Loss of Ecology & Authority (LoEA), India and Swedish International Development cooperation Agency (SIDA), Sweden. He has published research articles in a number of international journals on various topics including anaerobic degradation, bioleaching of metals, bioremediation technologies and molecular bioengineering.</p>	

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