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Review

Current scenario of chalcopyrite bioleaching: A review on the recent advances to its heap-leach technology

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1 **Current scenario of chalcopyrite bioleaching: A review on the** 2 **recent advances to its heap-leach technology**

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10 **Abstract**

11 Chalcopyrite is the primary copper mineral used for production of copper metal. Today,
12 as a result of rapid industrialization, there has been enormous demand to profitably process the
13 low grade chalcopyrite and “dirty” concentrates through bioleaching. In the current scenario,
14 heap bioleaching is the most advanced and preferred eco-friendly technology for processing of
15 low grade, uneconomic/difficult-to-enrich ores for copper extraction. This paper reviews the
16 current status of chalcopyrite bioleaching. Advanced information with the attempts made for
17 understanding the diversity of bioleaching microorganisms; role of OMICs based research for
18 future applications to industrial sectors and chemical/microbial aspects of chalcopyrite
19 bioleaching is discussed. Additionally, the current progress made to overcome the problems of
20 passivation as seen in chalcopyrite bioleaching systems have been conversed. Furthermore,
21 advances in the designing of heap bioleaching plant along with microbial and environmental
22 factors of importance have been reviewed with conclusions into the future prospects of
23 chalcopyrite bioleaching.

24 *Keywords – Chalcopyrite; Heap bioleaching; Acidophilies; Copper; Industrial Biotechnology*
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