

21ST CENTURY PROSPECTS OF GOLD BIOMINING IN INDIA -A REVIEW

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Abstract

Biomining is a natural, eco-friendly technique which is employed on commercial scale for the extraction of metals. Biomining is a process of conversion of an insoluble metal such as metal sulfides into a soluble form using microbes. Biomining has been applied to extract metals such as copper, cobalt, and gold from sulphide and/or iron containing ores typically using prokaryotes or fungi which is commercially applied using engineered dumps, heaps and stirred tanks. The geology of the mineralized areas in India, rich in chalcopyrite/pyrite, allows a number of microorganisms to be used for the extraction of metals by bio-oxidation. India is endowed with rich deposits of zinc, iron ore, manganese ore, gold, bauxite, silver, lead, tin, copper and chromite. This paper reviews the current status of biomining operations around the world, identifies factors that are important while applying biomining technology, describes the problems and prospects of biomining of auriferous deposits of India.

Keywords: Gold; Biomining; Auriferous deposits; non-ferrous; India; Bio-oxidation; Iron and sulphur oxidizing bacteria.