

عنوان مقاله:

ZINC BIOLEACHING OF SPHALERITE LOW-GRADE MINERAL ORE BY MESOPHILIC AND THERMOPHILIC BACTERIA IN AN AIRLIFT BIOREACTOR

محل انتشار:

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خلاصه مقاله:

A thermophilic iron oxidizing bacterium, *Sulfobacillus*, has been isolated (60 °C) from the Kooshk lead and zinc mine near the city of Yazd in central Iran. In addition, a mesophilic iron oxidizing bacterium, *Acidithiobacillus ferrooxidans*, has been adapted (33 °C) to high amounts of zinc. Effects of some variable parameters such as solid concentration, temperature, pH and Eh on the bioleaching of sphalerite low-grade mineral ore from Kooshk lead and zinc mine were investigated. Bioleaching experiments were carried out in two batch airlift bioreactor with a recycling stream. The results indicate that the efficiency of zinc extraction is dependent on all the variables studied for both microorganisms. Maximum zinc recovery was achieved using a thermophilic culture. Zinc dissolution reached 91.4% with *Sulfobacillus* and 87% with *Acidithiobacillus ferrooxidans* at 10% w/v pulp density, after 9 days.

کلمات کلیدی:

Bioleaching; *Acidithiobacillus ferrooxidans*; *Sulfobacillus*; Airlift bioreactor; Sphalerite; Low-grade mineral ore; Zinc extraction

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