

عنوان مقاله:

Copper Recovery Using the Bioleaching Process and its Optimization thereof with a Mix culture of *Sulfobacillus Acidophilus*, *Acidithiobacillus Caldus* and *Sulfobacillus Thermosulfidooxidans*

محل انتشار:

سومین کنفرانس بین المللی دستاوردهای نوین پژوهشی در شیمی و مهندسی شیمی (سال: 1395)

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خلاصه مقاله:

This study aims to find a proper solution in order to enhance the recovery process of Copper using samples that are gathered from Mes-e Sarcheshmeh, Kerman, Iran. A bioleaching process is used - along with its considerations - to carry out the recovery. A mixed culture of microorganisms including *Sulfobacillus Acidophilus*, *Acidithiobacillus Caldus* and *Sulfobacillus Thermosulfidooxidans* is exerted due to their potential capacity in the area of ferrous-iron-oxidizing processes. As for the Design of Experiment (DOE) method, the Box-Behnken Design was chosen considering the four effective factors and their three levels. Factors include temperature, pH, culture percentage, and Chalcopyrite concentration. The Copper extraction percentage was taken into consideration as the response which requires optimization. Minitab 16 software was used in order to perform the DOE and analysis of variances (ANOVA). Following the ANOVA evaluation, the optimum conditions of this process by a mix culture of strains that were mentioned are : pH 1.5, a temperature of 50°C, culture percentage of 10% and Chalcopyrite concentration of 15%. An optimized copper extraction percentage of up to 86% will be achieved under these circumstances.

کلمات کلیدی:

bioleaching, DOE, *Sulfobacillus Acidophilus*, *Acidithiobacillus Caldus*, *Sulfobacillus Thermosulfidooxidans*, optimization

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